



Ana A

- 1 -

~~HS~~

SEQUENCE LISTING

<110> Ballinger, Dennis
Loeb, Debra
Montgomery, Julie
Tang, Y. Tom
Zhou, Ping
Goodrich, Ryle
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Asundi, Vinod
Zhao, Qing
Wehrman, Tom
Drmanac, Radoje
Ren, Feiyan
Qian, Xiahong
Wang, Dunrui

<120> MATERIALS AND METHODS RELATING TO LIPID METABOLISM

<130> 28110/35915A

<140> US/09/835,996

<141> 2001-04-16

<150> US 60/197,137

<151> 2000-04-14

<150> US 09/714,936

<151> 2000-11-17

<150> US 09/667,298

<151> 2000-09-22

<150> US 09/631,451

<151> 2000-08-03

<150> US 09/598,042

<151> 2000-06-20

<160> 45

<170> PatentIn version 3.0

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acg atg gat ctg atg gag cag gtg gcc ctg cgc gtg cag gag ctg cag Thr Met Asp Leu Met Glu Gln Val Ala Leu Arg Val Gln Glu Leu Gln 135 140 145	489
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agc ctg gtg agc ggc atc ggg cgc cac gtg cag gag ctg cac cgc agt Ser Leu Val Ser Gly Ile Gly Arg His Val Gln Glu Leu His Arg Ser 200 205 210	681
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Phe Ala Gly Thr Gly Thr Glu Glu Gly Ala Gly Pro Asp Pro Gln Met	
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ctc tcc gag gag gtg cgc cag cga ctt cag gct ttc cgc cag gac acc	921
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Tyr Leu Gln Ile Ala Ala Phe Thr Arg Ala Ile Asp Gln Glu Thr Glu	
295 300 305	
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Glu Val Gln Gln Gln Leu Ala Pro Pro Pro Pro Gly His Ser Ala Phe	
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gcc cca gag ttt caa caa aca gac agt gcc aag gtt ctg agc aag ctg	1065
Ala Pro Glu Phe Gln Gln Thr Asp Ser Gly Lys Val Leu Ser Lys Leu	
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cag gcc cgt ctg gat gac ctg tgg gaa gac atc act cac agc ctt cat	1113
Gln Ala Arg Leu Asp Asp Leu Trp Glu Asp Ile Thr His Ser Leu His	
345 350 355	
gac cag ggc cac agc cat ctg ggg gac ccc tgaggatcta cctgccagg	1163
Asp Gln Gly His Ser His Leu Gly Asp Pro	
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Gln Thr Ser Gly Asp Lys Gly Arg Val Glu Gln Ile His Gln Gln Lys
35 40 45

Met Ala Arg Glu Pro Ala Thr Leu Lys Asp Ser Leu Glu Gln Asp Leu
50 55 60

Asn Asn Met Asn Lys Phe Leu Glu Lys Leu Arg Pro Leu Ser Gly Ser
65 70 75 80

Glu Ala Pro Arg Leu Pro Gln Asp Pro Val Gly Met Arg Arg Gln Leu
85 90 95

Gln Glu Glu Leu Glu Glu Val Lys Ala Arg Leu Gln Pro Tyr Met Ala
100 105 110

Glu Ala His Glu Leu Val Gly Trp Asn Leu Glu Gly Leu Arg Gln Gln
115 120 125

Leu Lys Pro Tyr Thr Met Asp Leu Met Glu Gln Val Ala Leu Arg Val
130 135 140

Gln Glu Leu Gln Glu Gln Leu Arg Val Val Gly Glu Asp Thr Lys Ala
145 150 155 160

Gln Leu Leu Gly Gly Val Asp Glu Ala Trp Ala Leu Leu Gln Gly Leu
165 170 175

Gln Ser Arg Val Val His His Thr Gly Arg Phe Lys Glu Leu Phe His
180 185 190

Pro Tyr Ala Glu Ser Leu Val Ser Gly Ile Gly Arg His Val Gln Glu
195 200 205

Leu His Arg Ser Val Ala Pro His Ala Pro Ala Ser Pro Ala Arg Leu
210 215 220

Ser Arg Cys Val Gln Val Leu Ser Arg Lys Leu Thr Leu Lys Ala Lys
225 230 235 240

Ala Leu His Ala Arg Ile Gln Gln Asn Leu Asp Gln Leu Arg Glu Glu
245 250 255

Leu Ser Arg Ala Phe Ala Gly Thr Gly Thr Glu Glu Gly Ala Gly Pro
260 265 270

Asp Pro Gln Met Leu Ser Glu Glu Val Arg Gln Arg Leu Gln Ala Phe
275 280 285

Arg Gln Asp Thr Tyr Leu Gln Ile Ala Ala Phe Thr Arg Ala Ile Asp
290 295 300

Gln Glu Thr Glu Glu Val Gln Gln Gln Leu Ala Pro Pro Pro Pro Gly
305 310 315 320

His Ser Ala Phe Ala Pro Glu Phe Gln Gln Thr Asp Ser Gly Lys Val
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His Ser Leu His Asp Gln Gly His Ser His Leu Gly Asp Pro
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tcaacattca gcagaggccc cagatcagcg tctgagccag gccacaatg accaaggagg 180
atg gga tcc tgg gtg cag ctc atc aca agc gtc ggg gtg cag caa aac 228
Met Gly Ser Trp Val Gln Leu Ile Thr Ser Val Gly Val Gln Gln Asn 15
1 5 10
cat cca ggc tgg aca gtg gct gga cag ttc caa gaa aag aaa cgc ttc 276
His Pro Gly Trp Thr Val Ala Gly Gln Phe Gln Glu Lys Lys Arg Phe 25 30
20
act gaa gaa gtc att gaa tac ttc cag aag aaa gtt agc cca gtg cat 324
Thr Glu Glu Val Ile Glu Tyr Phe Gln Lys Lys Val Ser Pro Val His 35 40 45
ctg aaa atc ctg ctg act agc gat gaa gcc tgg aag aga ttc gtg cgt 372
Leu Lys Ile Leu Leu Thr Ser Asp Glu Ala Trp Lys Arg Phe Val Arg 50 55 60
gtg gct gaa ttg ccc agg gaa gaa gca gat gct ctc tat gaa gct ctg 420
Val Ala Glu Leu Pro Arg Glu Glu Ala Asp Ala Leu Tyr Glu Ala Leu 65 70 75 80
aag aat ctt aca cca tat gtg gct att gag gac aaa gac atg cag caa 468
Lys Asn Leu Thr Pro Tyr Val Ala Ile Glu Asp Lys Asp Met Gln Gln 85 90 95

aaa gaa cag cag ttt agg gag tgg ttt ttg aaa gag ttt cct caa atc Lys Glu Gln Gln Phe Arg Glu Trp Phe Leu Lys Glu Phe Pro Gln Ile 100 105 110	516
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gag att gaa aag gtc cac aga ggc tgc gtc atc gcc aat gtg gtg tct Glu Ile Glu Lys Val His Arg Gly Cys Val Ile Ala Asn Val Val Ser 130 135 140	612
ggc tcc act ggc atc ctg tct gtc att ggc gtt atg ttg gca cca ttt Gly Ser Thr Gly Ile Leu Ser Val Ile Gly Val Met Leu Ala Pro Phe 145 150 155 160	660
aca gca ggg ctg agc ctg agc att act gca gct ggg gta ggg ctg gga Thr Ala Gly Leu Ser Leu Ser Ile Thr Ala Ala Gly Val Gly Leu Gly 165 170 175	708
ata gca tct gcc acg gct ggg atc gcc tcc agc atc gtg gag aac aca Ile Ala Ser Ala Thr Ala Gly Ile Ala Ser Ser Ile Val Glu Asn Thr 180 185 190	756
tac aca agg tca gca gaa ctc aca gcc agc agg ctg act gca acc agc Tyr Thr Arg Ser Ala Glu Leu Thr Ala Ser Arg Leu Thr Ala Thr Ser 195 200 205	804
act gac caa ttg gag gca tta agg gac att ctg cat gac atc aca ccc Thr Asp Gln Leu Glu Ala Leu Arg Asp Ile Leu His Asp Ile Thr Pro 210 215 220	852
aat gtg ctt tcc ttt gca ctt gat ttt gac gaa gcc aca aaa atg att Asn Val Leu Ser Phe Ala Leu Asp Phe Asp Glu Ala Thr Lys Met Ile 225 230 235 240	900
gcg aat gat gtc cat aca ctc agg aga tct aaa gcc act gtt gga cgc Ala Asn Asp Val His Thr Leu Arg Arg Ser Lys Ala Thr Val Gly Arg 245 250 255	948
cct ttg att gct tgg cga tat gta cct ata aat gtt gtt gag aca ctg Pro Leu Ile Ala Trp Arg Tyr Val Pro Ile Asn Val Val Glu Thr Leu 260 265 270	996
aga aca cgt ggg gcc ccc acc cgg ata gtg aga aaa gta gcc cgg aac Arg Thr Arg Gly Ala Pro Thr Arg Ile Val Arg Lys Val Ala Arg Asn 275 280 285	1044
ctg ggc aag gcc act tca ggt gtc ctt gtt gtg ctg gat gta gtc aac Leu Gly Lys Ala Thr Ser Gly Val Leu Val Val Leu Asp Val Val Asn 290 295 300	1092
ctt gtg caa gac tca ctg gac ttg cac aag ggg gca aaa tcc gag tct Leu Val Gln Asp Ser Leu Asp Leu His Lys Gly Ala Lys Ser Glu Ser 305 310 315 320	1140
gct gag tcgctgaggc agtgggctca ggagctggag gagaatctca atgagctcac Ala Glu	1196
ccatattccat cagagtctaa aagcaggcta ggcccaattg ttgcgggaag tcagggaacc	1256
caaacggagg gactggctga agccatggca gaagaacgtg gattgtgaag atttcatgga	1316

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Thr Glu Glu Val Ile Glu Tyr Phe Gln Lys Lys Val Ser Pro Val His
35 40 45
Leu Lys Ile Leu Leu Thr Ser Asp Glu Ala Trp Lys Arg Phe Val Arg
50 55 60
Val Ala Glu Leu Pro Arg Glu Glu Ala Asp Ala Leu Tyr Glu Ala Leu
65 70 75 80
Lys Asn Leu Thr Pro Tyr Val Ala Ile Glu Asp Lys Asp Met Gln Gln
85 90 95
Lys Glu Gln Gln Phe Arg Glu Trp Phe Leu Lys Glu Phe Pro Gln Ile
100 105 110
Arg Trp Lys Ile Gln Glu Ser Ile Glu Arg Leu Arg Val Ile Ala Asn
115 120 125
Glu Ile Glu Lys Val His Arg Gly Cys Val Ile Ala Asn Val Val Ser
130 135 140
Gly Ser Thr Gly Ile Leu Ser Val Ile Gly Val Met Leu Ala Pro Phe
145 150 155 160
Thr Ala Gly Leu Ser Leu Ser Ile Thr Ala Ala Gly Val Gly Leu Gly
165 170 175
Ile Ala Ser Ala Thr Ala Gly Ile Ala Ser Ser Ile Val Glu Asn Thr
180 185 190
Tyr Thr Arg Ser Ala Glu Leu Thr Ala Ser Arg Leu Thr Ala Thr Ser
195 200 205

Thr Asp Gln Leu Glu Ala Leu Arg Asp Ile Leu His Asp Ile Thr Pro
210 215 220

Asn Val Leu Ser Phe Ala Leu Asp Phe Asp Glu Ala Thr Lys Met Ile
225 230 235 240

Ala Asn Asp Val His Thr Leu Arg Arg Ser Lys Ala Thr Val Gly Arg
245 250 255

Pro Leu Ile Ala Trp Arg Tyr Val Pro Ile Asn Val Val Glu Thr Leu
260 265 270

Arg Thr Arg Gly Ala Pro Thr Arg Ile Val Arg Lys Val Ala Arg Asn
275 280 285

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Met Ala Gly Val Ile Pro Ile Gln Gly Gly Ile Leu Asn Leu Asn Lys 20 25
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atg gtc aag caa gtg act ggg aaa atg ccc atc ctc tcc tac tgg ccc 146
Met Val Lys Gln Val Thr Gly Lys Met Pro Ile Leu Ser Tyr Trp Pro 30 35 40
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tac ggc tgt cac tgc gga cta ggt ggc aga ggc caa ccc aaa gat gcc 194
Tyr Gly Cys His Cys Gly Leu Gly Gly Arg Gly Gln Pro Lys Asp Ala 45 50 55
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acg gac tgg tgc tgc cag acc cat gac tgc tgc tat gac cac ctg aag 242
Thr Asp Trp Cys Cys Gln Thr His Asp Cys Cys Tyr Asp His Leu Lys 60 65 70 75
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Thr Gly Lys Met Pro Ile Leu Ser Tyr Trp Pro Tyr Gly Cys His Cys
 35 40 45

Gly Leu Gly Gly Arg Gly Gln Pro Lys Asp Ala Thr Asp Trp Cys Cys
 50 55 60

Gln Thr His Asp Cys Cys Tyr Asp His Leu Lys Thr Gln Gly Cys Gly
 65 70 75 80

Ile Tyr Lys Asp Tyr Tyr Arg Tyr Asn Phe Ser Gln Gly Asn Ile His
 85 90 95

Cys Ser Asp Lys Gly Ser Trp Cys Glu Gln Gln Leu Cys Ala Cys Asp
 100 105 110

Lys Glu Val Ala Phe Cys Leu Lys Arg Asn Leu Asp Thr Tyr Gln Lys
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Cys
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Met Ala Ser Leu Leu Gln Asp Gln Leu Thr Thr
1 5 10
gat cag gac ttg ctg ctg atg cag gaa ggc atg ccg atg cgc aag gtg 220
Asp Gln Asp Leu Leu Leu Met Gln Glu Gly Met Pro Met Arg Lys Val
15 20 25
agg tcc aaa agc tgg aag aag cta aga tac ttc aga ctt cag aat gac 268
Arg Ser Lys Ser Trp Lys Lys Leu Arg Tyr Phe Arg Leu Gln Asn Asp
30 35 40
ggc atg aca gtc tgg cat gca cgg cag gcc agg ggc agt gcc aag ccc 316
Gly Met Thr Val Trp His Ala Arg Gln Ala Arg Gly Ser Ala Lys Pro
45 50 55
agc ttc tca atc tct gat gtg gag aca ata cgt aat ggc cat gat tcc 364
Ser Phe Ser Ile Ser Asp Val Glu Thr Ile Arg Asn Gly His Asp Ser
60 65 70 75
gag ttg ctg cgt agc ctg gca gag gag ctg ccc ctg gag cag ggc ttc 412
Glu Leu Leu Arg Ser Leu Ala Glu Glu Leu Pro Leu Glu Gln Gly Phe
80 85 90
acc att gtc ttc cat ggc cgc cgc tcc aac ctg gac ctg atg gcc aac 460
Thr Ile Val Phe His Gly Arg Arg Ser Asn Leu Asp Leu Met Ala Asn
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agt gtt gag gag gcc cag ata tgg atg cga ggg ctg cag ctg ttg gtg 508
Ser Val Glu Glu Ala Gln Ile Trp Met Arg Gly Leu Gln Leu Leu Val
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Asp Leu Val Thr Ser Met Asp His Gln Glu Arg Leu Asp Gln Trp Leu
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Ser Asp Trp Phe Gln Arg Gly Asp Lys Asn Gln Asp Gly Lys Met Ser
140 145 150 155
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Phe Gln Glu Val Gln Arg Leu Leu His Leu Met Asn Val Glu Met Asp
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Gln Glu Tyr Ala Phe Ser Leu Phe Gln Ala Ala Asp Thr Ser Gln Ser
175 180 185
gga acc ctg gaa gga gaa gaa ttc gta cag ttc tat aag gca ttg act 748
Gly Thr Leu Glu Gly Glu Glu Phe Val Gln Phe Tyr Lys Ala Leu Thr
190 195 200
aaa cgt gct gag gtg cag gaa ctg ttt gaa agt ttt tca gct gat ggg 796
Lys Arg Ala Glu Val Gln Glu Leu Phe Glu Ser Phe Ser Ala Asp Gly
205 210 215

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tat gaa cct tca gac agt ggc aaa ctg cgg cat gtg ccg agt atg gat Tyr Glu Pro Ser Asp Ser Gly Lys Leu Arg His Val Pro Ser Met Asp 255 260 265	940
ggc ttc ctc agc tac ctc tgc tct aag gat gga gac atc ttc aac cca Gly Phe Leu Ser Tyr Leu Cys Ser Lys Asp Gly Asp Ile Phe Asn Pro 270 275 280	988
gcc tgc ctc ccc atc tat cag gat atg act caa ccc ctg aac cac tac Ala Cys Leu Pro Ile Tyr Gln Asp Met Thr Gln Pro Leu Asn His Tyr 285 290 295	1036
ttc atc tgc tct tct cat aac acc tac cta gtg ggg gac cag ctt tgc Phe Ile Cys Ser Ser His Asn Thr Tyr Leu Val Gly Asp Gln Leu Cys 300 305 310 315	1084
ggc cag agc agc gtc gag gga tat ata cgg gcc ctg aag cgg ggg tgc Gly Gln Ser Ser Val Glu Gly Tyr Ile Arg Ala Leu Lys Arg Gly Cys 320 325 330	1132
cgc tgc gtg gag gtg gat gta tgg gat gga cct agc ggg gaa cct gtc Arg Cys Val Glu Val Asp Val Trp Asp Gly Pro Ser Gly Glu Pro Val 335 340 345	1180
gtt tac cac gga cac acc ctg acc tcc cgc atc ctg ttc aaa gat gtc Val Tyr His Gly His Thr Leu Thr Ser Arg Ile Leu Phe Lys Asp Val 350 355 360	1228
gtg gcc aca gta gca cag tat gcc ttc cag aca tca gac tac cca gtc Val Ala Thr Val Ala Gln Tyr Ala Phe Gln Thr Ser Asp Tyr Pro Val 365 370 375	1276
atc ttg tcc ctg gag acc cac tgc agc tgg gag cag cag cag acc atg Ile Leu Ser Leu Glu Thr His Cys Ser Trp Glu Gln Gln Gln Thr Met 380 385 390 395	1324
gcc cgt cat ctg act gag atc ctg ggg gag cag ctg ctg agc acc acc Ala Arg His Leu Thr Glu Ile Leu Gly Glu Gln Leu Leu Ser Thr Thr 400 405 410	1372
ttg gat ggg gtg gtg ccc act cag ctg ccc tgc cct gag gag ctt cgg Leu Asp Gly Val Leu Pro Thr Gln Leu Pro Ser Pro Glu Glu Leu Arg 415 420 425	1420
agg aag atc ctg gtg aag ggg aag aag tta aca ctt gag gaa gac ctg Arg Lys Ile Leu Val Lys Gly Lys Lys Leu Thr Leu Glu Glu Asp Leu 430 435 440	1468
gaa tat gag gaa gag gaa gca gaa cct gag ttg gaa gag tca gaa ttg Glu Tyr Glu Glu Glu Glu Ala Glu Pro Glu Leu Glu Glu Ser Glu Leu 445 450 455	1516
gcg ctg gag tcc cag ttt gag act gag cct gag ccc cag gag cag aac Ala Leu Glu Ser Gln Phe Glu Thr Glu Pro Glu Pro Gln Glu Gln Asn 460 465 470 475	1564

ctt cag aat aag gac aaa aag aag aaa tcc aag ccc atc ttg tgt cca 1612
 Leu Gln Asn Lys Asp Lys Lys Lys Lys Ser Lys Pro Ile Leu Cys Pro
 480 485 490

gcc ctg tct tcc ctg gtt atc tac ttg aag tct gtc tca ttc cgc agc 1660
 Ala Leu Ser Ser Leu Val Ile Tyr Leu Lys Ser Val Ser Phe Arg Ser
 495 500 505

ttc aca cat tca aag gag cac tac cac ttc tac gag ata tca tct ttc 1708
 Phe Thr His Ser Lys Glu His Tyr His Phe Tyr Glu Ile Ser Ser Phe
 510 515 520

tct gaa acc aag gcc aag cgc ctg atc aag gag gct ggc aat gag ttt 1756
 Ser Glu Thr Lys Ala Lys Arg Leu Ile Lys Glu Ala Gly Asn Glu Phe
 525 530 535

gtg cag cac aat act cgg cag tta agc cgt gtg tat ccc agc ggc ctg 1804
 Val Gln His Asn Thr Arg Gln Leu Ser Arg Val Tyr Pro Ser Gly Leu
 540 545 550 555

agg aca ggc tct tcc atc tac aac ccg cag gga tac 1840
 Arg Thr Gly Ser Ile Tyr Asn Pro Gln Gly Tyr
 560 565

<210> 8
 <211> 567
 <212> PRT
 <213> Homo sapiens

<400> 8
 Met Ala Ser Leu Leu Gln Asp Gln Leu Thr Thr Asp Gln Asp Leu Leu
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Leu Met Gln Glu Gly Met Pro Met Arg Lys Val Arg Ser Lys Ser Trp
 20 25 30

Lys Lys Leu Arg Tyr Phe Arg Leu Gln Asn Asp Gly Met Thr Val Trp
 35 40 45

His Ala Arg Gln Ala Arg Gly Ser Ala Lys Pro Ser Phe Ser Ile Ser
 50 55 60

Asp Val Glu Thr Ile Arg Asn Gly His Asp Ser Glu Leu Leu Arg Ser
 65 70 75 80

Leu Ala Glu Glu Leu Pro Leu Glu Gln Gly Phe Thr Ile Val Phe His
 85 90 95

Gly Arg Arg Ser Asn Leu Asp Leu Met Ala Asn Ser Val Glu Glu Ala
 100 105 110

Gln Ile Trp Met Arg Gly Leu Gln Leu Leu Val Asp Leu Val Thr Ser
 115 120 125

Met Asp His Gln Glu Arg Leu Asp Gln Trp Leu Ser Asp Trp Phe Gln
130 135 140

Arg Gly Asp Lys Asn Gln Asp Gly Lys Met Ser Phe Gln Glu Val Gln
145 150 155 160

Arg Leu Leu His Leu Met Asn Val Glu Met Asp Gln Glu Tyr Ala Phe
165 170 175

Ser Leu Phe Gln Ala Ala Asp Thr Ser Gln Ser Gly Thr Leu Glu Gly
180 185 190

Glu Glu Phe Val Gln Phe Tyr Lys Ala Leu Thr Lys Arg Ala Glu Val
195 200 205

Gln Glu Leu Phe Glu Ser Phe Ser Ala Asp Gly Gln Lys Leu Thr Leu
210 215 220

Leu Glu Phe Leu Asp Phe Leu Gln Glu Glu Gln Lys Glu Arg Asp Cys
225 230 235 240

Thr Ser Glu Leu Ala Leu Glu Leu Ile Asp Arg Tyr Glu Pro Ser Asp
245 250 255

Ser Gly Lys Leu Arg His Val Pro Ser Met Asp Gly Phe Leu Ser Tyr
260 265 270

Leu Cys Ser Lys Asp Gly Asp Ile Phe Asn Pro Ala Cys Leu Pro Ile
275 280 285

Tyr Gln Asp Met Thr Gln Pro Leu Asn His Tyr Phe Ile Cys Ser Ser
290 295 300

His Asn Thr Tyr Leu Val Gly Asp Gln Leu Cys Gly Gln Ser Ser Val
305 310 315 320

Glu Gly Tyr Ile Arg Ala Leu Lys Arg Gly Cys Arg Cys Val Glu Val
325 330 335

Asp Val Trp Asp Gly Pro Ser Gly Glu Pro Val Val Tyr His Gly His
340 345 350

Thr Leu Thr Ser Arg Ile Leu Phe Lys Asp Val Val Ala Thr Val Ala
355 360 365

Gln Tyr Ala Phe Gln Thr Ser Asp Tyr Pro Val Ile Leu Ser Leu Glu
370 375 380

Thr His Cys Ser Trp Glu Gln Gln Gln Thr Met Ala Arg His Leu Thr
385 390 395 400

Glu Ile Leu Gly Glu Gln Leu Leu Ser Thr Thr Leu Asp Gly Val Leu
405 410 415

Pro Thr Gln Leu Pro Ser Pro Glu Glu Leu Arg Arg Lys Ile Leu Val
420 425 430

Lys Gly Lys Lys Leu Thr Leu Glu Glu Asp Leu Glu Tyr Glu Glu Glu
435 440 445

Glu Ala Glu Pro Glu Leu Glu Glu Ser Glu Leu Ala Leu Glu Ser Gln
450 455 460

Phe Glu Thr Glu Pro Glu Pro Gln Glu Gln Asn Leu Gln Asn Lys Asp
465 470 475 480

Lys Lys Lys Lys Ser Lys Pro Ile Leu Cys Pro Ala Leu Ser Ser Leu
485 490 495

Val Ile Tyr Leu Lys Ser Val Ser Phe Arg Ser Phe Thr His Ser Lys
500 505 510

Glu His Tyr His Phe Tyr Glu Ile Ser Ser Phe Ser Glu Thr Lys Ala
515 520 525

Lys Arg Leu Ile Lys Glu Ala Gly Asn Glu Phe Val Gln His Asn Thr
530 535 540

Arg Gln Leu Ser Arg Val Tyr Pro Ser Gly Leu Arg Thr Gly Ser Ser
545 550 555 560

Ile Tyr Asn Pro Gln Gly Tyr
565

<210> 9
<211> 1384
<212> DNA
<213> Homo sapiens

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gtgaagagtt tttaaaccca caaattcttc ttactttaga attagtgtgt acattggcag 120
gaaaaaataa atgcagatgt tggaccatgt tggaaacctt gtcaagacag tggattgtct 180
cacacagaat ggaaatgtgg cttctgattc tgggtgcgta tatgttccag agaaatgtga 240
attcagtaca tatgccaaact aaagctgtgg acccagaagc attcatgaat attagtga 300

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tcatccaaca tcaaggctat cccgtgtgagg aatatgaagt cgcaactgaa gatgggtata 360
tcctttctgt taacaggatt cctcgaggcc tagtgcaacc taagaagaca ggttcagggc 420
ctgtggtggt actgcagcat ggcctagtgt gaggtgctag caactggatt tccaacctgc 480
ccaacaatat cctgggcttc attctggcag atgctggttt tgacgtgtgg atggggaaca 540
gcaggggaaa cgctgtgtct cgaaaaacaca agacactctc catagaccaa gatgagttct 600
gggctttcag ttatgatgag atggctaggt ttgaccttcc tgcagtata aactttattt 660
tgcagaaaaa gggccaggaa aagatctatt atgtcggcta ttcacagggc accaccatgg 720
gctttattgc attttccacc atgccagagc tggctcagaa aatcaaatg tattttgctt 780
tagcacccat agccactgtt aagcatgcaa aaagccccgg gaccaaattt ttgttctgctc 840
cagatatgat gatcaaggga ttgtttggca aaaaagaatt tctgtatcag accagatttc 900
tcagacaact tgttatttac ctttgtggcc aggtgattct tgatcagatt tgtagtaata 960
tcatgttact tctgggtgga ttcaacacca acaatatgaa catgagccga gcaagtgtat 1020
atgctgccca cactcttctg ggaacatctg tgcaaatat tctactctgg agccaggcag 1080
tgaattctgg tgaactccgg gcatttgact gggggagtga gacaaaaat ctgaaaaaat 1140
gcaatcagcc aactcctgta aggtacagag tcagagatat gacggtccct acagcaatgt 1200
ggacaggagg tcaggactgg ctttcaaatc cagaagacgt gaaaatgctg ctctctgagg 1260
tgaccaacct catctaccat aagaatatct ctgaatgggc tcatgtggat tcatctggg 1320
gtttggtatg tcctcaccgt atgtacaatg aaatcatcca tctgatcgag caggaggaga 1380
ccat 1384

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<210> 10
<211> 1915
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (180)..(1046)

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<400> 10
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cagtagcccg gcggcccgagg gcaatccgac cacatttcac tctcaccgct gtaggaaatcc 120
agatgcaggc caagtacagc agcacgaggg acatgctgga tgatgatggg gacaccacc 179
atg agc ctg cat tct caa gcc tct gcc aca act cgg cat cca gag ccc 227
Met Ser Leu His Ser Gln Ala Ser Ala Thr Thr Arg His Pro Glu Pro
1 5 10 15
cgg cgc aca gag cac agg gct ccc tct tca acg tgg cga cca gtg gcc 275
Arg Arg Thr Glu His Arg Ala Pro Ser Ser Thr Trp Arg Pro Val Ala
20 25 30

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ctg acc	ctg ctg	act ttg	tgc ttg	gtg ctg	ctg ata	ggg ctg	gca gcc	323
Leu Thr	Leu Leu	Thr Thr	Leu Cys	Leu Val	Leu Leu	Ile Gly	Leu Ala	
	35		40			45		
ctg ggg	ctt ttg	ttt ttt	cag tac	tac cag	ctc tcc	aat act	ggt caa	371
Leu Gly	Leu Leu	Phe Phe	Gln Tyr	Tyr Gln	Leu Ser	Asn Thr	Gly Gln	
	50		55			60		
gac acc	att tct	caa atg	gaa gaa	aga tta	gga aat	acg tcc	caa gag	419
Asp Thr	Ile Ser	Gln Met	Glu Glu	Arg Arg	Gly Asn	Thr Ser	Gln Glu	
65		70			75		80	
ttg caa	tct ctt	caa gtc	cag aat	ata aag	ctt gca	gga agt	ctg cag	467
Leu Gln	Ser Leu	Gln Val	Gln Asn	Ile Lys	Leu Ala	Gly Ser	Gln Gln	
	85			90			95	
cat gtg	gct gaa	aaa ctc	tgt cgt	gag ctg	tat aac	aaa gct	gga ggc	515
His Val	Ala Glu	Lys Leu	Cys Arg	Glu Leu	Tyr Asn	Lys Ala	Gly Gly	
	100			105		110		
tat aca	aga aac	atg gtg	cca gca	tct gct	tct tct	gag agc	ctc agg	563
Tyr Thr	Arg Asn	Met Val	Pro Ala	Ser Ala	Ser Ser	Glu Ser	Leu Arg	
	115		120			125		
cag ctt	cca cac	atg ggg	gaa agt	gca gca	gca cac	agg tgc	agc cct	611
Gln Leu	Pro His	Met Gly	Glu Ser	Ala Ala	His Arg	Cys Ser	Pro Pro	
	130		135			140		
tgt aca	gaa caa	tgg aaa	tgg cat	gga gac	aat tgc	tac cag	ttc tat	659
Cys Thr	Glu Gln	Trp Lys	Trp His	Gly Asp	Asn Cys	Tyr Gln	Phe Tyr	
145		150		155			160	
aaa gac	agc aaa	agt tgg	gag gac	tgt aaa	tat ttc	tgc ctt	agt gaa	707
Lys Asp	Ser Lys	Ser Trp	Glu Asp	Cys Lys	Tyr Phe	Cys Leu	Ser Glu	
	165			170			175	
aac tct	acc atg	ctg aag	ata aac	aaa caa	gaa gac	ctg gaa	ttt gcc	755
Asn Ser	Thr Met	Leu Lys	Ile Asn	Lys Gln	Glu Asp	Leu Glu	Phe Ala	
	180			185		190		
gcg tct	cag agc	tac tct	gag ttt	ttc tac	tct tat	tgg aca	ggg ctt	803
Ala Ser	Gln Ser	Tyr Ser	Glu Phe	Phe Tyr	Ser Tyr	Thr Thr	Gly Leu	
	195		200			205		
ttg cgc	cct gac	agt ggc	aag gcc	tgg ctg	tgg atg	gat gga	acc cct	851
Leu Arg	Pro Asp	Ser Gly	Lys Ala	Trp Leu	Trp Met	Asp Gly	Thr Pro	
	210		215		220			
ttc act	tct gaa	ctg ttc	cat att	ata ata	gat gtc	acc agc	cca aga	899
Phe Thr	Ser Glu	Leu Phe	His Ile	Ile Ile	Asp Val	Thr Ser	Pro Arg	
225		230			235		240	
agc aga	gac tgt	gtg gcc	atc ctt	aat ggg	atg atc	ttc tca	aag gac	947
Ser Arg	Asp Cys	Val Ala	Ile Leu	Asn Gly	Met Ile	Phe Ser	Lys Asp	
	245			250			255	
tgc aaa	gaa ttg	aag cgt	tgt gtc	tgt gag	aga agg	gca gga	atg gtg	995
Cys Lys	Glu Leu	Lys Arg	Cys Val	Cys Glu	Arg Arg	Ala Gly	Met Val	
	260			265		270		
aag cca	gag agc	ctc cat	gtc ccc	cct gaa	aca tta	ggc gaa	ggg gac	1043
Lys Pro	Glu Ser	Leu His	Val Pro	Pro Glu	Thr Leu	Gly Glu	Gly Asp	
	275		280			285		

tga ttcgccctct gcaactacaa atagcagagt gagccaggcg gtgccaaagc 1096
aagggctagt tgagacattg ggaaatggaa cataatcagg aaagactatc tctctgacta 1156
gtacaaaatg gggtctcgtg ttctctgttc aggatcacca gcatttctga gcttgggttt 1216
atgcacgtat ttaacagtca caagaagtct tatttacatg ccaccaacca acctcagaaa 1276
cccataatgt catctgcctt ctggccttag agataacttt tagctctctt tcttctcaat 1336
gtctaataac acctccctgt ttctatgtct tccttacctt tgggtggaata agaaactttt 1396
tgaagtagag gaaatacatt gaggtaacat ccttttctct gacagtcaag tagtccatca 1456
gaaattggca gtcacttccc agattgtacc agcaaataca caaggaattc tttttgtttg 1516
tttcagtcca tactagtccc ttcccattcc atcagtaaa accccatctg ccttgtccat 1576
gccgtttccc aacagggatg tcaactgata tgagaatctc aaatctcaat gccttataag 1636
cattctctcc tgtgtccatt aagactctga taattgtctc cctccatag gaatttctcc 1696
caggaaagaa atatatcccc atctccgctt catatcagaa ctaccgtccc cgaatttccc 1756
ttcagagaga ttaaagacca gaaaaaaggg gggctttttt ttgacactg taatagtttc 1816
cggctctttt ttttttctt gaccctctt ttttcccttc cgggggtgga ggggttatta 1876
taattaaggg gaataccggg gaaaaaaa aaaaaggggg 1915

<210> 11
<211> 288
<212> PRT
<213> Homo sapiens

<400> 11
Met Ser Leu His Ser Gln Ala Ser Ala Thr Thr Arg His Pro Glu Pro
1 5 10 15
Arg Arg Thr Glu His Arg Ala Pro Ser Ser Thr Trp Arg Pro Val Ala
20 25 30
Leu Thr Leu Leu Thr Leu Cys Leu Val Leu Leu Ile Gly Leu Ala Ala
35 40 45
Leu Gly Leu Leu Phe Phe Gln Tyr Tyr Gln Leu Ser Asn Thr Gly Gln
50 55 60
Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr Ser Gln Glu
65 70 75 80
Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala Gly Ser Leu Gln
85 90 95
His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn Lys Ala Gly Gly
100 105 110

Tyr Thr Arg Asn Met Val Pro Ala Ser Ala Ser Ser Glu Ser Leu Arg
115 120 125

Gln Leu Pro His Met Gly Glu Ser Ala Ala Ala His Arg Cys Ser Pro
130 135 140

Cys Thr Glu Gln Trp Lys Trp His Gly Asp Asn Cys Tyr Gln Phe Tyr
145 150 155 160

Lys Asp Ser Lys Ser Trp Glu Asp Cys Lys Tyr Phe Cys Leu Ser Glu
165 170 175

Asn Ser Thr Met Leu Lys Ile Asn Lys Gln Glu Asp Leu Glu Phe Ala
180 185 190

Ala Ser Gln Ser Tyr Ser Glu Phe Phe Tyr Ser Tyr Trp Thr Gly Leu
195 200 205

Leu Arg Pro Asp Ser Gly Lys Ala Trp Leu Trp Met Asp Gly Thr Pro
210 215 220

Phe Thr Ser Glu Leu Phe His Ile Ile Ile Asp Val Thr Ser Pro Arg
225 230 235 240

Ser Arg Asp Cys Val Ala Ile Leu Asn Gly Met Ile Phe Ser Lys Asp
245 250 255

Cys Lys Glu Leu Lys Arg Cys Val Cys Glu Arg Arg Ala Gly Met Val
260 265 270

Lys Pro Glu Ser Leu His Val Pro Pro Glu Thr Leu Gly Glu Gly Asp
275 280 285

<210> 12
<211> 2420
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (200)..(2395)

<220>
<221> misc_feature
<222> (2093)
<223> n = a, g, c or t

<220>
<221> misc_feature
<222> (2215)
<223> d = a or g or t; not c

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<220>
<221> misc_feature
<222> (2332)
<223> b = c or g or t; not a

<220>
<221> misc_feature
<222> (2396)
<223> m = a or c

<220>
<221> misc_feature
<222> (632)
<223> Xaa = unknown or other

<220>
<221> misc_feature
<222> (672)
<223> Xaa = unknown or other

<220>
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<222> (711)
<223> Xaa = unknown or other

<400> 12
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gaagtcttag gactaatctc caggaccagc actcttctcc cagcccttag ggtcctgctc      180
ggccaaggcc ttccctgcc atg cga cct gtc agt gtc tgg cag tgg agc ccc      232
                Met Arg Pro Val Ser Val Trp Gln Trp Ser Pro
                1                5                10

tgg ggg ctg ctg ctg tgc ctg ctg tgc agt tgc tgc ttg ggg tct ccg      280
Trp Gly Leu Leu Leu Cys Leu Leu Cys Ser Ser Cys Leu Gly Ser Pro
                15                20                25

tcc cct tcc acg ggc cct gag aag aag gcc ggg agc cag ggg ctt cgg      328
Ser Pro Ser Thr Gly Pro Glu Lys Lys Ala Gly Ser Gln Gly Leu Arg
                30                35                40

ttc cgg ctg gct ggc ttc ccc agg aag ccc tac gag ggc cgc gtg gag      376
Phe Arg Leu Ala Gly Phe Pro Arg Lys Pro Tyr Gln Gly Arg Val Glu
                45                50                55

ata cag cga gct ggt gaa tgg ggc acc atc tgc gat gat gac ttc acg      424
Ile Gln Arg Ala Gly Glu Trp Gly Thr Ile Gln Cys Asp Asp Asp Phe Thr
                60                65                70                75

ctg cag gct gcc cac atc ctc tgc cgg gag ctg gcc ttc aca gag gcc      472
Leu Gln Ala Ala His Ile Leu Cys Arg Glu Leu Gly Phe Thr Glu Ala
                80                85                90

aca ggc tgg acc cac agt gcc aaa tat ggc cct gga aca ggc cgc atc      520
Thr Gly Trp Thr His Ser Ala Lys Tyr Gly Pro Gly Thr Gly Arg Ile
                95                100                105

tgg ctg gac aac ttg agc tgc agt ggg acc gag cag agt gtg act gaa      568
Trp Leu Asp Asn Leu Ser Cys Ser Gly Thr Glu Gln Ser Val Thr Glu
                110                115                120

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tgt gcc tcc cgg ggc tgg ggg aac agt gac tgt acg cac gat gag gat Cys Ala Ser Arg Gly Trp Gly Asn Ser Asp Cys Thr His Asp Glu Asp 125 130 135	616
gct ggg gtc atc tgc aaa gac cag cgc ctc cct ggc ttc tgc gac tcc Ala Gly Val Ile Cys Lys Asp Gln Arg Leu Pro Gly Phe Ser Asp Ser 140 145 150 155	664
aat gtc att gag gta gag cat cac ctg caa gtg gag gag gtg cga att Asn Val Ile Glu Val Glu His His Leu Gln Val Glu Glu Val Arg Ile 160 165 170	712
cga ccc gcc gtt ggg tgg ggc aga cga ccc ctg ccc gtg acg gag ggg Arg Pro Ala Val Gly Trp Gly Arg Arg Pro Leu Pro Val Thr Glu Gly 175 180 185	760
ctg gtg gaa gtc agg ctt cct gac ggc tgg tgc caa gtg tgc gac aaa Leu Val Glu Val Arg Leu Pro Asp Gly Trp Ser Gln Val Cys Asp Lys 190 195 200	808
ggc tgg agc gcc cac aac agc cac gtg gtc tgc ggg atg ctg ggc ttc Gly Trp Ser Ala His Asn Ser His Val Val Cys Gly Met Leu Gly Phe 205 210 215	856
ccc agc gaa aag agg gtc aac gcg gcc ttc tac agg ctg cta gcc caa Pro Ser Glu Lys Arg Val Asn Ala Ala Phe Tyr Arg Leu Leu Ala Gln 220 225 230 235	904
cgg cag caa cac tcc ttt ggt ctg cat ggg gtg gcg tgc gtg ggc acg Arg Gln Gln His Ser Phe Gly Leu His Gly Val Ala Cys Val Gly Thr 240 245 250	952
gag gcc cac ctc tcc ctc tgt tcc ctg gag ttc tat cgt gcc aat gac Glu Ala His Leu Ser Leu Cys Ser Leu Glu Phe Tyr Arg Ala Asn Asp 255 260 265	1000
acc gcc agg tgc cct ggg ggg ggc cct gca gtg gtg agc tgt gtg cca Thr Ala Arg Cys Pro Gly Gly Gly Pro Ala Val Val Ser Cys Val Pro 270 275 280	1048
ggc cct gtc tac gcg gca tcc agt ggc cag aag aag caa caa cag tgc Gly Pro Val Tyr Ala Ala Ser Ser Gly Gln Lys Lys Gln Gln Gln Ser 285 290 295	1096
aag cct cag ggg gag gtc cgt gtc cgt cta aag ggc ggc gcc cac cct Lys Pro Gln Gly Glu Val Arg Val Arg Leu Lys Gly Gly Ala His Pro 300 305 310 315	1144
gga gag ggc cgg gta gaa gtc ctg aag gcc agc aca tgg ggc aca gtc Gly Glu Gly Arg Val Glu Val Leu Lys Ala Ser Thr Trp Gly Thr Val 320 325 330	1192
tgt tac cgc aag tgg gac ctg cat gca gcc agc gtg gtg tgt cgg gag Cys Tyr Arg Lys Trp Asp Leu His Ala Ala Ser Val Val Cys Arg Glu 335 340 345	1240
ctg ggc ttc ggg agt gct cga gaa gct ctg agt ggc gct cgc atg ggg Leu Gly Phe Gly Ser Ala Arg Glu Ala Leu Ser Gly Ala Arg Met Gly 350 355 360	1288
cag ggc atg ggt gct atc cac ctg agt gaa gtt cgc tgc tct gga cag Gln Gly Met Gly Ala Ile His Leu Ser Glu Val Arg Cys Ser Gly Gln 365 370 375	1336

gag ctc tcc ctc tgg aag tgc ccc cac aag aac atc aca gct gag gat Glu Leu Ser Leu Trp Lys Cys Pro His Lys Asn Ile Thr Ala Glu Asp 380 385 390 395	1384
tgt tca cat agc cag gat gcc ggg gtc cgg tgc aac cta cct tac act Cys Ser His Ser Gln Asp Ala Gly Val Arg Cys Asn Leu Pro Tyr Thr 400 405 410	1432
ggg gca gag acc agg gtc atc cat tct gtg tca cta cag atc cga ctc Gly Ala Glu Thr Arg Val Ile His Ser Val Ser Leu Gln Ile Arg Leu 415 420 425	1480
agt ggg ggc cgc agc caa cat gag ggg cga gtc gag gtg caa ata ggg Ser Gly Gly Arg Ser Gln His Glu Gly Arg Val Glu Val Gln Ile Gly 430 435 440	1528
gga cct ggg ccc ctt cgc tgg ggc ctc atc tgt ggg gat gac tgg ggg Gly Pro Gly Pro Leu Arg Trp Gly Leu Ile Cys Gly Asp Asp Trp Gly 445 450 455	1576
acc ctg gag gcc atg gtg gcc tgt agg caa ctg ggt ctg ggc tac gcc Thr Leu Glu Ala Met Val Ala Cys Arg Gln Leu Gly Leu Tyr Ala 460 465 470 475	1624
aac cac ggc ctg cag gag acc tgg tac tgg gac tct ggg aat ata aca Asn His Gly Leu Gln Glu Thr Trp Tyr Trp Asp Ser Gly Asn Ile Thr 480 485 490	1672
gag gtg gtg atg agt gga gtg cgc tgc aca ggg act gag ctg tcc ctg Glu Val Val Met Ser Gly Val Arg Cys Thr Gly Thr Glu Leu Ser Leu 495 500 505	1720
gat cag tgt gcc cat cat ggc acc cac atc acc tgc aag agg aca ggg Asp Gln Cys Ala His His Gly Thr His Ile Thr Cys Lys Arg Thr Gly 510 515 520	1768
acc cgc ttc act gct gga gtc atc tgt tct gag gca tca gat ctg ttg Thr Arg Phe Thr Ala Gly Val Ile Cys Ser Ser Glu Ala Ser Asp Leu Leu 525 530 535	1816
ctg cac tca gca ctg gtg cag gag acc gcc tac atc gaa gac cgg ccc Leu His Ser Ala Leu Val Gln Glu Thr Ala Tyr Ile Glu Asp Arg Pro 540 545 550 555	1864
ctg cat atg ttg tac tgt gct gcg gaa gag aac tgc ctg gcc agc tca Leu His Met Leu Tyr Cys Ala Ala Glu Glu Asn Cys Leu Ala Ser Ser 560 565 570	1912
gcc cgc tca gcc aac tgg ccc tat ggt cac cgg cgt ctg ctc cga ttc Ala Arg Ser Ala Asn Trp Pro Tyr Gly His Arg Arg Leu Leu Arg Phe 575 580 585	1960
tgc tcc cag atc cac aac ctg gga cga gct gac ttc agg ccc aag gct Cys Ser Gln Ile His Asn Leu Gly Arg Ala Asp Phe Arg Pro Lys Ala 590 595 600	2008
ggg cgc cac tcc tgg gtg tgg cac gag tgc cat ggg cat tac cac agc Gly Arg His Ser Trp Val Trp His Glu Cys His Gly His Tyr His Ser 605 610 615	2056
acg gac ttc ttc act cac tat gat atc ctc acc cca nat ggc acc aag Thr Asp Phe Phe Thr His Tyr Asp Ile Leu Thr Pro Xaa Gly Thr Lys 620 625 630 635	2104

gtg gct gag ggc cac aaa gct agt ttc tgt ctc gaa gac act gag tgt 2152
Val Ala Glu Gly His Lys Ala Ser Phe Cys Leu Glu Asp Thr Glu Cys
640 645 650

cag gag gat gtc tcc aag cgg tat gag tgt gcc aac ttt gga gag caa 2200
Gln Glu Asp Val Ser Lys Arg Tyr Glu Cys Ala Asn Phe Gly Glu Gln
655 660 665

ggc atc act gtg ggd tgc tgg gat ctc tac cgg cat gac att gac tgt 2248
Gly Ile Thr Val Xaa Cys Trp Asp Leu Tyr Arg His Asp Ile Asp Cys
670 675 680

cag tgg att gac atc acg gat gtg aag cca gga aac tac att ctc cag 2296
Gln Trp Ile Asp Ile Thr Asp Val Lys Pro Gly Asn Tyr Ile Leu Gln
685 690 695

gtt gtc atc aac cca aac ttt gaa gta gca gag agb gac ttt acc aac 2344
Val Val Ile Asn Pro Asn Phe Glu Val Ala Glu Xaa Asp Phe Thr Asn
700 705 710 715

aat gca atg aaa tgt aac tgc aaa tat gat gga cat aga atc tgg gtg 2392
Asn Ala Met Lys Cys Asn Cys Lys Tyr Asp Gly His Asp Ile Trp Val
720 725 730

cac macttgccac attggtgatg ccttc 2420
His

<210> 13
<211> 732
<212> PRT
<213> Homo sapiens

<220>
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<222> (632)
<223> Xaa = unknown or other

<220>
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<222> (672)
<223> Xaa = unknown or other

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<222> (711)
<223> Xaa = unknown or other

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Cys Leu Leu Cys Ser Ser Cys Leu Gly Ser Pro Ser Pro Ser Thr Gly
20 25 30

Pro Glu Lys Lys Ala Gly Ser Gln Gly Leu Arg Phe Arg Leu Ala Gly
35 40 45

Phe Pro Arg Lys Pro Tyr Glu Gly Arg Val Glu Ile Gln Arg Ala Gly
 50 55 60
 Glu Trp Gly Thr Ile Cys Asp Asp Asp Phe Thr Leu Gln Ala Ala His
 65 70 75 80
 Ile Leu Cys Arg Glu Leu Gly Phe Thr Glu Ala Thr Gly Trp Thr His
 85 90 95
 Ser Ala Lys Tyr Gly Pro Gly Thr Gly Arg Ile Trp Leu Asp Asn Leu
 100 105 110
 Ser Cys Ser Gly Thr Glu Gln Ser Val Thr Glu Cys Ala Ser Arg Gly
 115 120 125
 Trp Gly Asn Ser Asp Cys Thr His Asp Glu Asp Ala Gly Val Ile Cys
 130 135 140
 Lys Asp Gln Arg Leu Pro Gly Phe Ser Asp Ser Asn Val Ile Glu Val
 145 150 155 160
 Glu His His Leu Gln Val Glu Glu Val Arg Ile Arg Pro Ala Val Gly
 165 170 175
 Trp Gly Arg Arg Pro Leu Pro Val Thr Glu Gly Leu Val Glu Val Arg
 180 185 190
 Leu Pro Asp Gly Trp Ser Gln Val Cys Asp Lys Gly Trp Ser Ala His
 195 200 205
 Asn Ser His Val Val Cys Gly Met Leu Gly Phe Pro Ser Glu Lys Arg
 210 215 220
 Val Asn Ala Ala Phe Tyr Arg Leu Leu Ala Gln Arg Gln Gln His Ser
 225 230 235 240
 Phe Gly Leu His Gly Val Ala Cys Val Gly Thr Glu Ala His Leu Ser
 245 250 255
 Leu Cys Ser Leu Glu Phe Tyr Arg Ala Asn Asp Thr Ala Arg Cys Pro
 260 265 270
 Gly Gly Gly Pro Ala Val Val Ser Cys Val Pro Gly Pro Val Tyr Ala
 275 280 285
 Ala Ser Ser Gly Gln Lys Lys Gln Gln Gln Ser Lys Pro Gln Gly Glu
 290 295 300

Val Arg Val Arg Leu Lys Gly Gly Ala His Pro Gly Glu Gly Arg Val
305 310 315 320

Glu Val Leu Lys Ala Ser Thr Trp Gly Thr Val Cys Tyr Arg Lys Trp
325 330 335

Asp Leu His Ala Ala Ser Val Val Cys Arg Glu Leu Gly Phe Gly Ser
340 345 350

Ala Arg Glu Ala Leu Ser Gly Ala Arg Met Gly Gln Gly Met Gly Ala
355 360 365

Ile His Leu Ser Glu Val Arg Cys Ser Gly Gln Glu Leu Ser Leu Trp
370 375 380

Lys Cys Pro His Lys Asn Ile Thr Ala Glu Asp Cys Ser His Ser Gln
385 390 395 400

Asp Ala Gly Val Arg Cys Asn Leu Pro Tyr Thr Gly Ala Glu Thr Arg
405 410 415

Val Ile His Ser Val Ser Leu Gln Ile Arg Leu Ser Gly Gly Arg Ser
420 425 430

Gln His Glu Gly Arg Val Glu Val Gln Ile Gly Gly Pro Gly Pro Leu
435 440 445

Arg Trp Gly Leu Ile Cys Gly Asp Asp Trp Gly Thr Leu Glu Ala Met
450 455 460

Val Ala Cys Arg Gln Leu Gly Leu Gly Tyr Ala Asn His Gly Leu Gln
465 470 475 480

Glu Thr Trp Tyr Trp Asp Ser Gly Asn Ile Thr Glu Val Val Met Ser
485 490 495

Gly Val Arg Cys Thr Gly Thr Glu Leu Ser Leu Asp Gln Cys Ala His
500 505 510

His Gly Thr His Ile Thr Cys Lys Arg Thr Gly Thr Arg Phe Thr Ala
515 520 525

Gly Val Ile Cys Ser Glu Ala Ser Asp Leu Leu Leu His Ser Ala Leu
530 535 540

Val Gln Glu Thr Ala Tyr Ile Glu Asp Arg Pro Leu His Met Leu Tyr
545 550 555 560

Cys Ala Ala Glu Glu Asn Cys Leu Ala Ser Ser Ala Arg Ser Ala Asn
565 570 575

Trp Pro Tyr Gly His Arg Arg Leu Leu Arg Phe Cys Ser Gln Ile His
580 585 590

Asn Leu Gly Arg Ala Asp Phe Arg Pro Lys Ala Gly Arg His Ser Trp
595 600 605

Val Trp His Glu Cys His Gly His Tyr His Ser Thr Asp Phe Phe Thr
610 615 620

His Tyr Asp Ile Leu Thr Pro Xaa Gly Thr Lys Val Ala Glu Gly His
625 630 635 640

Lys Ala Ser Phe Cys Leu Glu Asp Thr Glu Cys Gln Glu Asp Val Ser
645 650 655

Lys Arg Tyr Glu Cys Ala Asn Phe Gly Glu Gln Gly Ile Thr Val Xaa
660 665 670

Cys Trp Asp Leu Tyr Arg His Asp Ile Asp Cys Gln Trp Ile Asp Ile
675 680 685

Thr Asp Val Lys Pro Gly Asn Tyr Ile Leu Gln Val Val Ile Asn Pro
690 695 700

Asn Phe Glu Val Ala Glu Xaa Asp Phe Thr Asn Asn Ala Met Lys Cys
705 710 715 720

Asn Cys Lys Tyr Asp Gly His Arg Ile Trp Val His
725 730

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tccctccacc ttccacatcc tgctccaggc aggagaaggc tgactggctg gactcattga 120
gctgaagaat ttccagtgc atttgtaa atg acg ccg etc gat tcc agg etc 172
Met Thr Pro Leu Asp Ser Arg Leu
1 5

caa gcg gcc cct gcc gcc gcc gcc gcc gcc ggg ccg aag gtg ccg ccg Gln Ala Ala Pro Ala Ala Ala Ala Ala Gly Pro Lys Val Pro Pro 10 15 20	220
agc agt ctc cag cgc agg ctt cct tac cgg gcg acc aca atg tcc gag Ser Ser Leu Gln Arg Arg Leu Pro Tyr Arg Ala Thr Thr Met Ser Glu 25 30 35 40	268
ttt ctc ctc gcc tta ctc act ctc tcg gga tta ttg ccg att gcc agg Phe Leu Leu Ala Leu Leu Thr Leu Ser Gly Leu Leu Pro Ile Ala Arg 45 50 55	316
gtg ctg acc gtg gga gcc gac cga gat cag cag ttg tgt gat cct ggt Val Leu Thr Val Gly Ala Asp Arg Gln Gln Leu Cys Asp Pro Gly 60 65 70	364
gaa ttt ctt tgc cac gat cac gtg act tgt gtc tcc cag agc tgg ctg Glu Phe Leu Cys His Asp His Val Thr Cys Val Ser Gln Ser Trp Leu 75 80 85	412
tgt gat ggg gac cct gac tgc cct gat gat tca gac gag tct tta gat Cys Asp Gly Asp Pro Asp Cys Pro Asp Asp Ser Asp Glu Ser Leu Asp 90 95 100	460
acc tgt ccc gag gag gta gaa atc aag tgc ccc ttg aat cac att gct Thr Cys Pro Glu Glu Val Glu Ile Lys Cys Pro Leu Asn His Ile Ala 105 110 115 120	508
tgc ctt ggc acc aac aaa tgt gtt cat tta tcc cag ctg tgc aat ggt Cys Leu Gly Thr Asn Lys Cys Val His Leu Ser Gln Leu Cys Asn Gly 125 130 135	556
gtc ttg gac tgc cca gat ggg tat gac gaa gga gta cat tgt cag gaa Val Leu Asp Cys Pro Asp Gly Tyr Asp Glu Gly Val His Cys Gln Glu 140 145 150	604
ctg tta tcc aat tgc caa cag ctg aat tgt cag tat aaa tgt aca atg Leu Leu Ser Asn Cys Gln Gln Leu Asn Cys Gln Tyr Lys Cys Thr Met 155 160 165	652
gtc aga aat agt aca aga tgt tac tgt gag gat gga ttc gaa ata aca Val Arg Asn Ser Thr Arg Cys Tyr Cys Glu Asp Gly Phe Glu Ile Thr 170 175 180	700
gaa gat ggg aga agc tgt aaa gat caa gat gaa tgt gct gtt tat ggt Glu Asp Gly Arg Ser Cys Lys Asp Gln Asp Gln Cys Ala Val Tyr Glu 185 190 195 200	748
aca ggc agc cag acc tgc aga aac aca cat gga tcc tac act tgc agt Thr Gly Ser Gln Thr Cys Arg Asn Thr His Gly Ser Tyr Thr Cys Ser 205 210 215	796
tgt gtg gaa ggc tac cta atg cag cca gac agc aga tct tgc aag gct Cys Val Glu Gly Tyr Leu Met Gln Pro Asp Ser Arg Ser Cys Lys Ala 220 225 230	844
aaa att gaa cct aca gat aga cca cgt ata cta tta att gca aat ttt Lys Ile Glu Pro Thr Asp Arg Pro Arg Ile Leu Leu Ile Ala Asn Phe 235 240 245	892
gaa tca att gag gtt ttc tat ctt aat gga agt aaa att gca act cta Glu Ser Ile Glu Val Phe Tyr Leu Asn Gly Ser Lys Ile Ala Thr Leu 250 255 260	940

agc tca gtc aat gga aat gaa att cat act ctg gat ttt att tat aat Ser Ser Val Asn Gly Asn Glu Ile His Thr Leu Asp Phe Ile Tyr Asn 265 270 275 280	988
gaa gat gtg att tgt tgg att gaa tca aga gaa tct tca aat caa ctc Glu Asp Val Ile Cys Trp Ile Glu Ser Arg Glu Ser Ser Asn Gln Leu 285 290 295	1036
aaa tgt atc cag ata aca aaa gca gga gga tta aca gat gaa tgg aca Lys Cys Ile Gln Ile Thr Lys Ala Gly Gly Leu Thr Asp Glu Trp Thr 300 305 310	1084
atc aat att ctt caa tcc ttc cac aat gtg caa caa atg gcg att gac Ile Asn Ile Leu Gln Ser Phe His Asn Val Gln Gln Met Ala Ile Asp 315 320 325	1132
tgg ctc act cga aat ctc tat ttt gtg gac cat gtc ggt gac cgg atc Trp Leu Thr Arg Asn Leu Tyr Phe Val Asp His Val Gly Asp Arg Ile 330 335 340	1180
ttt gtt tgt aat tcc aac ggt tct gta tgt gtc acc ctg att gat ctg Phe Val Cys Asn Ser Asn Gly Ser Val Cys Val Thr Leu Ile Asp Leu 345 350 355 360	1228
gag ctt cac aat cct aaa gca ata gca gta gat cca ata gca gga aaa Glu Leu His Asn Pro Lys Ala Ile Ala Val Asp Pro Ile Ala Gly Lys 365 370 375	1276
ctt ttc ttt act gac tac ggg aat gtc gcc aaa gtg gag aga tgt gac Leu Phe Phe Thr Asp Tyr Gly Asn Val Ala Lys Val Glu Arg Cys Asp 380 385 390	1324
atg gat ggg atg aac cga aca agg ata att gat tca aag aca gag cag Met Asp Gly Met Asn Arg Thr Arg Ile Ile Asp Ser Lys Thr Glu Gln 395 400 405	1372
cca gct gca ctg gca cta gac cta gtc aac aaa ttg gtt tac tgg gta Pro Ala Ala Leu Ala Leu Asp Leu Val Asn Lys Leu Val Tyr Trp Val 410 415 420	1420
gat ctt tac ttg gac tat gtg gga gta gtg gac tat caa gga aaa aat Asp Leu Tyr Leu Asp Tyr Val Gly Val Val Asp Tyr Gln Gly Lys Asn 425 430 435 440	1468
aga cac act gtc att caa ggc aga caa gtc aga cat ctt tat ggt ata Arg His Thr Val Ile Gln Gly Arg Gln Val Arg His Leu Tyr Gly Ile 445 450 455	1516
act gtg ttt gaa gat tat ttg tat gca acc aat tct gat aac tac aat Thr Val Phe Glu Asp Tyr Leu Tyr Ala Thr Asn Ser Asp Asn Tyr Asn 460 465 470	1564
atc gta agg ata aac cga ttt aat ggg act gat att cac tca tta att Ile Val Arg Ile Asn Arg Phe Asn Gly Thr Asp Ile His Ser Leu Ile 475 480 485	1612
aaa att gag aat gct tgg gga atc cga att tat caa aaa aga act caa Lys Ile Glu Asn Ala Trp Gly Ile Arg Ile Tyr Gln Lys Arg Thr Gln 490 495 500	1660
cca aca gtc aga agc cat gca tgt gaa gtc gat cca tat gga atg cca Pro Thr Val Arg Ser His Ala Cys Glu Val Asp Pro Tyr Gly Met Pro 505 510 515 520	1708

ggg ggc tgt tca cac atc tgt cta ctc agc agc agt tac aaa act cgg 1756
 Gly Gly Cys Ser His Ile Cys Leu Leu Ser Ser Ser Tyr Lys Thr Arg
 525 530 535

act tgt cgc tgc agg act ggc ttc aac ttg gga agt gat ggc agg tca 1804
 Thr Cys Arg Cys Arg Thr Gly Phe Asn Leu Gly Ser Asp Gly Arg Ser
 540 545 550

tgc aaa aga cca aag aat gag ttg ttc ctc ttt tat ggg aaa gga cgc 1852
 Cys Lys Arg Pro Lys Asn Glu Leu Phe Leu Phe Tyr Gly Lys Gly Arg
 555 560 565

cca gga att gtt aga gga atg gac ttg aat acc aag ata gct gat gaa 1900
 Pro Gly Ile Val Arg Gly Met Asp Leu Asn Thr Lys Ile Ala Asp Glu
 570 575 580

tac atg atc ccc ata gaa aat ctg gta aac cct cgt gct tta gac ttt 1948
 Tyr Met Ile Pro Ile Glu Asn Leu Val Asn Pro Arg Ala Leu Asp Phe
 585 590 595 600

cac gca gaa acc aat tac atc tac ttt gct gac acc acc agt ttc cta 1996
 His Ala Glu Thr Asn Tyr Ile Tyr Phe Ala Asp Thr Ser Phe Leu
 605 610 615

att ggc cgg cag aag ata gat ggc aca gag aga gaa acc atc ctg aaa 2044
 Ile Gly Arg Gln Lys Ile Asp Gly Thr Glu Arg Glu Thr Ile Leu Lys
 620 625 630

gat gat ctg gat aat gta gag g 2066
 Asp Asp Leu Asp Asn Val Glu
 635

<210> 15
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 <212> PRT
 <213> Homo sapiens

<400> 15
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 20 25 30

Tyr Arg Ala Thr Thr Met Ser Glu Phe Leu Leu Ala Leu Leu Thr Leu
 35 40 45

Ser Gly Leu Leu Pro Ile Ala Arg Val Leu Thr Val Gly Ala Asp Arg
 50 55 60

Asp Gln Gln Leu Cys Asp Pro Gly Glu Phe Leu Cys His Asp His Val
 65 70 75 80

Thr Cys Val Ser Gln Ser Trp Leu Cys Asp Gly Asp Pro Asp Cys Pro
 85 90 95

Asp Asp Ser Asp Glu Ser Leu Asp Thr Cys Pro Glu Glu Val Glu Ile
 100 105 110
 Lys Cys Pro Leu Asn His Ile Ala Cys Leu Gly Thr Asn Lys Cys Val
 115 120 125
 His Leu Ser Gln Leu Cys Asn Gly Val Leu Asp Cys Pro Asp Gly Tyr
 130 135 140
 Asp Glu Gly Val His Cys Gln Glu Leu Leu Ser Asn Cys Gln Gln Leu
 145 150 155 160
 Asn Cys Gln Tyr Lys Cys Thr Met Val Arg Asn Ser Thr Arg Cys Tyr
 165 170 175
 Cys Glu Asp Gly Phe Glu Ile Thr Glu Asp Gly Arg Ser Cys Lys Asp
 180 185 190
 Gln Asp Glu Cys Ala Val Tyr Gly Thr Gly Ser Gln Thr Cys Arg Asn
 195 200 205
 Thr His Gly Ser Tyr Thr Cys Ser Cys Val Glu Gly Tyr Leu Met Gln
 210 215 220
 Pro Asp Ser Arg Ser Cys Lys Ala Lys Ile Glu Pro Thr Asp Arg Pro
 225 230 235 240
 Arg Ile Leu Leu Ile Ala Asn Phe Glu Ser Ile Glu Val Phe Tyr Leu
 245 250 255
 Asn Gly Ser Lys Ile Ala Thr Leu Ser Ser Val Asn Gly Asn Glu Ile
 260 265 270
 His Thr Leu Asp Phe Ile Tyr Asn Glu Asp Val Ile Cys Trp Ile Glu
 275 280 285
 Ser Arg Glu Ser Ser Asn Gln Leu Lys Cys Ile Gln Ile Thr Lys Ala
 290 295 300
 Gly Gly Leu Thr Asp Glu Trp Thr Ile Asn Ile Leu Gln Ser Phe His
 305 310 315 320
 Asn Val Gln Gln Met Ala Ile Asp Trp Leu Thr Arg Asn Leu Tyr Phe
 325 330 335
 Val Asp His Val Gly Asp Arg Ile Phe Val Cys Asn Ser Asn Gly Ser
 340 345 350

Val Cys Val Thr Leu Ile Asp Leu Glu Leu His Asn Pro Lys Ala Ile
355 360 365

Ala Val Asp Pro Ile Ala Gly Lys Leu Phe Phe Thr Asp Tyr Gly Asn
370 375 380

Val Ala Lys Val Glu Arg Cys Asp Met Asp Gly Met Asn Arg Thr Arg
385 390 395 400

Ile Ile Asp Ser Lys Thr Glu Gln Pro Ala Ala Leu Ala Leu Asp Leu
405 410 415

Val Asn Lys Leu Val Tyr Trp Val Asp Leu Tyr Leu Asp Tyr Val Gly
420 425 430

Val Val Asp Tyr Gln Gly Lys Asn Arg His Thr Val Ile Gln Gly Arg
435 440 445

Gln Val Arg His Leu Tyr Gly Ile Thr Val Phe Glu Asp Tyr Leu Tyr
450 455 460

Ala Thr Asn Ser Asp Asn Tyr Asn Ile Val Arg Ile Asn Arg Phe Asn
465 470 475 480

Gly Thr Asp Ile His Ser Leu Ile Lys Ile Glu Asn Ala Trp Gly Ile
485 490 495

Arg Ile Tyr Gln Lys Arg Thr Gln Pro Thr Val Arg Ser His Ala Cys
500 505 510

Glu Val Asp Pro Tyr Gly Met Pro Gly Gly Cys Ser His Ile Cys Leu
515 520 525

Leu Ser Ser Ser Tyr Lys Thr Arg Thr Cys Arg Cys Arg Thr Gly Phe
530 535 540

Asn Leu Gly Ser Asp Gly Arg Ser Cys Lys Arg Pro Lys Asn Glu Leu
545 550 555 560

Phe Leu Phe Tyr Gly Lys Gly Arg Pro Gly Ile Val Arg Gly Met Asp
565 570 575

Leu Asn Thr Lys Ile Ala Asp Glu Tyr Met Ile Pro Ile Glu Asn Leu
580 585 590

Val Asn Pro Arg Ala Leu Asp Phe His Ala Glu Thr Asn Tyr Ile Tyr
595 600 605

Phe Ala Asp Thr Thr Ser Phe Leu Ile Gly Arg Gln Lys Ile Asp Gly
610 615 620

Thr Glu Arg Glu Thr Ile Leu Lys Asp Asp Leu Asp Asn Val Glu
625 630 635

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<211> 1333
<212> DNA
<213> Homo sapiens

<220>
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<222> (280)..(1323)

<400> 16
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tggaggaggc cccgcagcga catggaggga gctgctttgc tgaaagtctt tgctctctgc 120
atctggaacc aaaatcaatt cccggaattg accaactggt agactcgcct agaggggaag 180
cattgtgtcc tagttgaggc taacagtcag tatccagcct caacattcag cagaggcccc 240
agatcagcgt ctgagccagg ccaacaatga ccaaggagg atg gga tcc tgg gtg 294
Met Gly Ser Trp Val
1 5
cag ctc atc aca agc gtc ggg gtg cag caa aac cat cca ggc tgg aca 342
Gln Leu Ile Thr Ser Val Gly Val Gln Gln Asn His Pro Gly Trp Thr
10 15 20
gtg gct gga cag ttc caa gaa aag aaa cgc ttc act gaa gaa gtc att 390
Val Ala Gly Gln Phe Gln Glu Lys Lys Arg Phe Thr Glu Glu Val Ile
25 30 35
gaa tac ttc cag aag aaa gtt agc cca gtg cat ctg aaa atc ctg ctg 438
Glu Tyr Phe Gln Lys Lys Val Ser Pro Val His Leu Lys Ile Leu Leu
40 45 50
act agc gat gaa gcc tgg aag aga ttc gtg cgt gtg gct gaa ttg ccc 486
Thr Ser Asp Glu Ala Trp Lys Arg Phe Val Arg Val Ala Glu Leu Pro
55 60 65
agg gaa gaa gca gat gct ctc tat gaa gct ctg aag aat ctt aca cca 534
Arg Glu Glu Ala Asp Ala Leu Tyr Glu Ala Leu Lys Asn Leu Thr Pro
70 75 80 85
tat gtg gct att gag gac aaa gac atg cag caa aaa gaa cag cag ttt 582
Tyr Val Ala Ile Glu Asp Lys Asp Met Gln Gln Lys Glu Gln Gln Phe
90 95 100
agg gag tgg ttt ttg aaa gag ttt cct caa atc aga tgg aag att cag 630
Arg Glu Trp Phe Leu Lys Glu Phe Pro Gln Ile Arg Trp Lys Ile Gln
105 110 115
gag tcc ata gaa agg ctt cgt gtc att gca aat gag att gaa aag gtc 678
Glu Ser Ile Glu Arg Leu Arg Val Ile Ala Asn Glu Ile Glu Lys Val
120 125 130

cac aga ggc tgc gtc atc gcc aat gtg gtg tct ggc tcc act ggc atc His Arg Gly Cys Val Ile Ala Asn Val Val Ser Gly Ser Thr Gly Ile 135 140 145	726
ctg tct gtc att ggc gtt atg ttg gca cca ttt aca gca ggg ctg agc Leu Ser Val Ile Gly Val Met Leu Ala Pro Phe Thr Ala Gly Leu Ser 150 155 160 165	774
ctg agc att act gca gct ggg gta ggg ctg gga ata gca tct gcc acg Leu Ser Ile Thr Ala Ala Gly Val Gly Thr Gly Ile Ala Ser Ala Thr 170 175 180	822
gct ggg atc gcc tcc agc atc gtg gag aac aca tac aca agg tca gca Ala Gly Ile Ala Ser Ser Ile Val Glu Asn Thr Tyr Thr Arg Ser Ala 185 190 195	870
gaa ctc aca gcc agc agg ctg act gca acc agc act gac caa ttg gag Glu Leu Thr Ala Ser Arg Leu Thr Ala Thr Ser Thr Asp Gln Leu Glu 200 205 210	918
gca tta agg gac att ctg cgt gac atc aca ccc aat gtg ctt tct ttt Ala Leu Arg Asp Ile Leu Arg Asp Ile Thr Pro Asn Val Leu Ser Phe 215 220 225	966
gca ctt gat ttt gac gaa gcc aca aaa atg att gcg aat gat gtc cat Ala Leu Asp Phe Asp Glu Ala Thr Lys Met Ile Ala Asn Asp Val His 230 235 240 245	1014
aca ctc agg aga tct aaa gcc act gtt gga cgc cct ttg att gct tgg Thr Leu Arg Arg Ser Lys Ala Thr Val Gly Arg Pro Leu Ile Ala Trp 250 255 260	1062
cga tat gta cct ata aat gtt gtt gag aca ctg aga aca cgt ggg gcc Arg Tyr Val Pro Ile Asn Val Val Glu Thr Leu Arg Thr Arg Gly Ala 265 270 275	1110
ccc acc cgg ata gtg aga aaa gta gcc cgg aac ctg ggc aag gcc act Pro Thr Arg Ile Val Arg Lys Val Ala Arg Asn Leu Gly Lys Ala Thr 280 285 290	1158
tca ggt gtc ctt gtt gtg ctg gat gta gtc aac ctt gtg caa gac tca Ser Gly Val Leu Val Val Leu Asp Val Val Asn Leu Val Gln Asp Ser 295 300 305	1206
ctg gac ttg cac aag ggg gca aaa tcc gag tct gct gag tgc ctg agg Leu Asp Leu His Lys Gly Ala Lys Ser Glu Ser Ala Glu Ser Leu Arg 310 315 320 325	1254
cag tgg gct cag gag ctg gag gag aat ctc aat gag ctc acc cat atc Gln Trp Ala Gln Glu Leu Glu Glu Asn Leu Asn Glu Leu Thr His Ile 330 335 340	1302
cat cag agt cta aaa gca ggc taggccaat His Gln Ser Leu Lys Ala Gly 345	1333
<210> 17	
<211> 348	
<212> PRT	
<213> Homo sapiens	

<400> 17
Met Gly Ser Trp Val Gln Leu Ile Thr Ser Val Gly Val Gln Gln Asn
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His Pro Gly Trp Thr Val Ala Gly Gln Phe Gln Glu Lys Lys Arg Phe
20 25 30

Thr Glu Glu Val Ile Glu Tyr Phe Gln Lys Lys Val Ser Pro Val His
35 40 45

Leu Lys Ile Leu Leu Thr Ser Asp Glu Ala Trp Lys Arg Phe Val Arg
50 55 60

Val Ala Glu Leu Pro Arg Glu Glu Ala Asp Ala Leu Tyr Glu Ala Leu
65 70 75 80

Lys Asn Leu Thr Pro Tyr Val Ala Ile Glu Asp Lys Asp Met Gln Gln
85 90 95

Lys Glu Gln Gln Phe Arg Glu Trp Phe Leu Lys Glu Phe Pro Gln Ile
100 105 110

Arg Trp Lys Ile Gln Glu Ser Ile Glu Arg Leu Arg Val Ile Ala Asn
115 120 125

Glu Ile Glu Lys Val His Arg Gly Cys Val Ile Ala Asn Val Val Ser
130 135 140

Gly Ser Thr Gly Ile Leu Ser Val Ile Gly Val Met Leu Ala Pro Phe
145 150 155 160

Thr Ala Gly Leu Ser Leu Ser Ile Thr Ala Ala Gly Val Gly Leu Gly
165 170 175

Ile Ala Ser Ala Thr Ala Gly Ile Ala Ser Ser Ile Val Glu Asn Thr
180 185 190

Tyr Thr Arg Ser Ala Glu Leu Thr Ala Ser Arg Leu Thr Ala Thr Ser
195 200 205

Thr Asp Gln Leu Glu Ala Leu Arg Asp Ile Leu Arg Asp Ile Thr Pro
210 215 220

Asn Val Leu Ser Phe Ala Leu Asp Phe Asp Glu Ala Thr Lys Met Ile
225 230 235 240

Ala Asn Asp Val His Thr Leu Arg Arg Ser Lys Ala Thr Val Gly Arg
245 250 255

Pro Leu Ile Ala Trp Arg Tyr Val Pro Ile Asn Val Val Glu Thr Leu
260 265 270

Arg Thr Arg Gly Ala Pro Thr Arg Ile Val Arg Lys Val Ala Arg Asn
275 280 285

Leu Gly Lys Ala Thr Ser Gly Val Leu Val Val Leu Asp Val Val Asn
290 295 300

Leu Val Gln Asp Ser Leu Asp Leu His Lys Gly Ala Lys Ser Glu Ser
305 310 315 320

Ala Glu Ser Leu Arg Gln Trp Ala Gln Glu Leu Glu Glu Asn Leu Asn
325 330 335

Glu Leu Thr His Ile His Gln Ser Leu Lys Ala Gly
340 345

<210> 18
<211> 1490
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (151)..(1170)

<400> 18
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aggcacagct cacagacaca ggaaacacag gactgctatt ctgctctcct gccacgggtg 120
atctggtgcc agctggtgga acagtgggtg atg gcg tcc ctg ctg caa gac cag 174
Met Ala Ser Leu Leu Gln Asp Gln
1 5
ctg acc act gat cag gac ttg ctg ctg atg cag gaa ggc atg ccg atg 222
Leu Thr Thr Asp Gln Asp Leu Leu Leu Met Gln Glu Gly Met Pro Met
10 15 20
cgc aag gtg agg tcc aaa agc tgg aag aag cta aga tac ttc aga ctt 270
Arg Lys Val Arg Ser Lys Ser Trp Lys Lys Leu Arg Tyr Phe Arg Leu
25 30 35 40
cag aat gac ggc atg aca gtc tgg cat gca cgg cag gcc agg ggc agt 318
Gln Asn Asp Gly Met Thr Val Trp His Ala Arg Gln Ala Arg Gly Ser
45 50 55
gcc aag ccc agc ttc tca atc tct gat gtg gag aca ata cgt aat ggc 366
Ala Lys Pro Ser Phe Ser Ile Ser Asp Val Glu Thr Ile Arg Asn Gly
60 65 70
cat gat tcc gag ttg ctg cgt agc ctg gca gag gag ctc ccc ctg gag 414
His Asp Ser Glu Leu Leu Arg Ser Leu Ala Glu Glu Leu Pro Leu Glu
75 80 85

cag ggc ttc acc att gtc ttc cat ggc cgc cgc tcc aac ctg gac ctg Gln Gly Phe Thr Ile Val Phe His Gly Arg Arg Ser Asn Leu Asp Leu 90 95 100	462
atg gcc aac agt gtt gag gag gcc cag ata tgg atg cga ggg ctc cag Met Ala Asn Ser Val Glu Glu Ala Gln Ile Trp Met Arg Gly Leu Gln 105 110 115 120	510
ctg ttg gtg gat ctt gtc acc agc atg gac cat cag gag cgc ctg gac Leu Leu Val Asp Leu Val Thr Ser Met Asp His Gln Glu Arg Leu Asp 125 130 135	558
caa tgg ctg agc gat tgg ttt caa cgt gga gac aaa aat cag gat ggt Gln Trp Leu Ser Asp Trp Phe Gln Arg Gly Asp Lys Asn Gln Asp Gly 140 145 150	606
aag atg agt ttc caa gaa gtt cag cgg tta ttg cac cta atg aat gtg Lys Met Ser Phe Gln Glu Val Gln Arg Leu Leu His Leu Met Asn Val 155 160 165	654
gaa atg gac caa gaa tat gcc ttc agt ctt ttt cag gca gac acg Glu Met Asp Gln Glu Tyr Ala Phe Ser Leu Phe Gln Ala Ala Asp Thr 170 175 180	702
tcc cag tct gga acc ctg gaa gga gaa gaa ttc gta cag ttc tat aag Ser Gln Ser Gly Thr Leu Glu Gly Glu Glu Phe Val Gln Phe Tyr Lys 185 190 195 200	750
gca ttg act aaa cgt gct gag gtg cag gaa ctg ttt gaa agt ttt tca Ala Leu Thr Lys Arg Ala Glu Val Gln Glu Leu Phe Glu Ser Phe Ser 205 210 215	798
gct gat ggg cag aag ctg act ctg ctg gaa ttt ttg gat ttc ctc caa Ala Asp Gly Gln Lys Leu Thr Leu Leu Glu Phe Leu Asp Phe Leu Gln 220 225 230	846
gag gag cag aag gag aga gac tgc acc tct gag ctt gct ctg gaa ctc Glu Glu Gln Lys Glu Arg Asp Cys Thr Ser Glu Leu Ala Leu Glu Leu 235 240 245	894
att gac cgc tat gaa cct tca gac agt ggc aaa ctg cgg cat gtg ctg Ile Asp Arg Tyr Glu Pro Ser Asp Ser Gly Lys Leu Arg His Val Leu 250 255 260	942
agt atg gat ggc ttc ctc agc tac ctc tgc tct aag gat gga gac atc Ser Met Asp Gly Phe Leu Ser Tyr Leu Cys Ser Lys Asp Gly Asp Ile 265 270 275 280	990
ttc aac cca gcc tgc ctc ccc atc tat cag gat atg act caa ccc ctg Phe Asn Pro Ala Cys Leu Pro Ile Tyr Gln Asp Met Thr Gln Pro Leu 285 290 295	1038
aac cac tac ttc atc tgc tct tct cat aac acc tac cta gtg ggg gac Asn His Tyr Phe Ile Cys Ser Ser His Asn Thr Tyr Leu Val Gly Asp 300 305 310	1086
cag ctt tgc ggc cag agc agc gtc gag gga tat ata cgg tgc agt ggt Gln Leu Cys Gly Gln Ser Ser Val Glu Gly Tyr Ile Arg Cys Ser Gly 315 320 325	1134
ggg aga gaa ggg gtc caa ctc atg aga ggg acc atg tagaaaagtg Gly Arg Glu Gly Val Gln Leu Met Arg Gly Thr Met 330 335 340	1180

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 aaccctatgg gtcaatggaa cttctctttc acaagctatg aaactctcct ggaactcaga 1360
 ggccctgaca gatttatatt taacaaatta ataacacatg tggttaaagg aaggcaatag 1420
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 ctttacttgg 1490

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Leu Met Gln Glu Gly Met Pro Met Arg Lys Val Arg Ser Lys Ser Trp
 20 25 30

Lys Lys Leu Arg Tyr Phe Arg Leu Gln Asn Asp Gly Met Thr Val Trp
 35 40 45

His Ala Arg Gln Ala Arg Gly Ser Ala Lys Pro Ser Phe Ser Ile Ser
 50 55 60

Asp Val Glu Thr Ile Arg Asn Gly His Asp Ser Glu Leu Leu Arg Ser
 65 70 75 80

Leu Ala Glu Glu Leu Pro Leu Glu Gln Gly Phe Thr Ile Val Phe His
 85 90 95

Gly Arg Arg Ser Asn Leu Asp Leu Met Ala Asn Ser Val Glu Glu Ala
 100 105 110

Gln Ile Trp Met Arg Gly Leu Gln Leu Leu Val Asp Leu Val Thr Ser
 115 120 125

Met Asp His Gln Glu Arg Leu Asp Gln Trp Leu Ser Asp Trp Phe Gln
 130 135 140

Arg Gly Asp Lys Asn Gln Asp Gly Lys Met Ser Phe Gln Glu Val Gln
 145 150 155 160

Arg Leu Leu His Leu Met Asn Val Glu Met Asp Gln Glu Tyr Ala Phe
 165 170 175

Ser Leu Phe Gln Ala Ala Asp Thr Ser Gln Ser Gly Thr Leu Glu Gly
180 185 190

Glu Glu Phe Val Gln Phe Tyr Lys Ala Leu Thr Lys Arg Ala Glu Val
195 200 205

Gln Glu Leu Phe Glu Ser Phe Ser Ala Asp Gly Gln Lys Leu Thr Leu
210 215 220

Leu Glu Phe Leu Asp Phe Leu Gln Glu Glu Gln Lys Glu Arg Asp Cys
225 230 235 240

Thr Ser Glu Leu Ala Leu Glu Leu Ile Asp Arg Tyr Glu Pro Ser Asp
245 250 255

Ser Gly Lys Leu Arg His Val Leu Ser Met Asp Gly Phe Leu Ser Tyr
260 265 270

Leu Cys Ser Lys Asp Gly Asp Ile Phe Asn Pro Ala Cys Leu Pro Ile
275 280 285

Tyr Gln Asp Met Thr Gln Pro Leu Asn His Tyr Phe Ile Cys Ser Ser
290 295 300

His Asn Thr Tyr Leu Val Gly Asp Gln Leu Cys Gly Gln Ser Ser Val
305 310 315 320

Glu Gly Tyr Ile Arg Cys Ser Gly Gly Arg Glu Gly Val Gln Leu Met
325 330 335

Arg Gly Thr Met
340

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gaaaaaataa atgcagatgt tggaccatgt tggaaacctt gtcaagacag tggattgtct		180
cacacaga atg gaa atg tgg ctt ctg att ctg gtg gcg tat atg ttc cag		230
Met Glu Met Trp Leu Leu Ile Leu Val Ala Tyr Met Phe Gln		
1 5 10		

aga aat gtg aat tca gta cat atg cca act aaa gct gtg gac cca gaa Arg Asn Val Asn Ser Val His Met Pro Thr Lys Ala Val Asp Pro Glu 15 20 25 30	278
gca ttc atg aat att agt gaa atc atc caa cat caa ggc tat ccc tgt Ala Phe Met Asn Ile Ser Glu Ile Ile Gln His Gln Gly Tyr Pro Cys 35 40 45	326
gag gaa tat gaa gtc gca act gaa gat ggg tat atc ctt tct gtt aac Glu Glu Tyr Glu Val Ala Thr Glu Asp Gly Tyr Ile Leu Ser Val Asn 50 55 60	374
agg att cct cga ggc cta gtg caa cct aag aag aca ggt tcc agg cct Arg Ile Pro Arg Gly Leu Val Gln Pro Lys Lys Thr Gly Ser Arg Pro 65 70 75	422
gtg gtg tta ctg cag cat ggc cta gtt gga ggt gct agc aac tgg att Val Val Leu Leu Gln His Gly Leu Val Gly Gly Ala Ser Asn Trp Ile 80 85 90	470
tcc aac ctg ccc aac aat agc ctg ggc ttc att ctg gca gat gct ggt Ser Asn Leu Pro Asn Asn Ser Leu Gly Phe Ile Leu Ala Asp Ala Gly 95 100 105 110	518
ttt gac gtg tgg atg ggg aac agc agg gga aac gcc tgg tct cga aaa Phe Asp Val Trp Met Gly Asn Ser Arg Gly Asn Ala Trp Ser Arg Lys 115 120 125	566
cac aag aca ctc tcc ata gac caa gat gag ttc tgg gct ttc agt tat His Lys Thr Leu Ser Ile Asp Gln Asp Glu Phe Trp Ala Phe Ser Tyr 130 135 140	614
gat gag atg gct agg ttt gac ctt cct gca gtg ata aac ttt att ttg Asp Glu Met Ala Arg Phe Asp Leu Pro Ala Val Ile Asn Phe Ile Leu 145 150 155	662
cag aaa acg ggc cag gaa aag atc tat tat gtc ggc tat tca cag ggc Gln Lys Thr Gly Gln Glu Lys Ile Tyr Tyr Val Gly Tyr Ser Gln Gly 160 165 170	710
acc acc atg ggc ttt att gca ttt tcc acc atg cca gag ctg gct cag Thr Thr Met Gly Phe Ile Ala Phe Ser Thr Met Pro Glu Leu Ala Gln 175 180 185 190	758
aaa atc aaa atg tat ttt gct tta gca ccc ata gcc act gtt aag cat Lys Ile Lys Met Tyr Phe Ala Leu Ala Pro Ile Ala Thr Val Lys His 195 200 205	806
gca aaa agc ccc ggg acc aaa ttt ttg ttg ctg cca gat atg atg atc Ala Lys Ser Pro Gly Thr Lys Phe Leu Leu Leu Pro Asp Met Met Ile 210 215 220	854
aag gga ttg ttt ggc aaa aaa gaa ttt ctg tat cag acc aga ttt ctc Lys Gly Leu Phe Gly Lys Lys Glu Phe Leu Tyr Gln Thr Arg Phe Leu 225 230 235	902
aga caa ctt gtt att tac ctt tgt ggc cag gtg att ctt gat cag att Arg Gln Leu Val Ile Tyr Leu Cys Gly Gln Val Ile Leu Asp Gln Ile 240 245 250	950
tgt agt aat atc atg tta ctt ctg ggt gga ttc aac acc aac aat atg Cys Ser Asn Ile Met Leu Leu Leu Gly Gly Phe Asn Thr Asn Asn Met 255 260 265 270	998

aac atg agc cga gca agt gta tat gct gcc cac act ctt gct gga aca	1046
Asn Met Ser Arg Ala Ser Val Tyr Ala Ala His Thr Leu Ala Gly Thr	
275 280 285	
tct gtg caa aat att cta cac tgg agc cag gca gtg aat tct ggt gaa	1094
Ser Val Gln Asn Ile Leu His Trp Ser Gln Ala Val Asn Ser Gly Glu	
290 295 300	
ctc cgg gca ttt gac tgg ggg agt gag acc aaa aat ctg gaa aaa tgc	1142
Leu Arg Ala Phe Asp Trp Gly Ser Glu Thr Lys Asn Leu Glu Lys Cys	
305 310 315	
aat cag cca act cct gta agg tac aga gtc aga gat atg acg gtc cct	1190
Asn Gln Pro Thr Pro Val Arg Tyr Arg Val Arg Asp Met Thr Val Pro	
320 325 330	
aca gca atg tgg aca gga ggt cag gac tgg ctt tca aat cca gaa gac	1238
Thr Ala Met Trp Thr Gly Gly Gln Asp Trp Leu Ser Asn Pro Glu Asp	
335 340 345 350	
gtg aaa atg ctg ctc tct gag gtg acc aac ctc atc tac cat aag aat	1286
Val Lys Met Leu Leu Ser Glu Val Thr Asn Leu Ile Tyr His Lys Asn	
355 360 365	
att cct gaa tgg gct cat gtg gat ttc atc tgg ggt ttg gat gct cct	1334
Ile Pro Glu Trp Ala His Val Asp Phe Ile Trp Gly Leu Asp Ala Pro	
370 375 380	
cac cgt atg tac aat gaa atc atc cat ctg atg cag cag gag gag acc	1382
His Arg Met Tyr Asn Glu Ile Ile His Leu Met Gln Gln Glu Glu Thr	
385 390 395	
aac ctt tcc cag gga cgg tgt gag gcc gta ttg tgaagcatct gacactgacg	1435
Asn Leu Ser Gln Gly Arg Cys Glu Ala Val Leu	
400 405	
atcttaggac aaacctcctga gggatggggc taggacccat gaaggcagaa ttatggagag	1495
cagagacctta gtatacatatt ttcagattcc ctgcacttgg cactaaatcc gacacttaca	1555
tttacatttt ttttctgtaa attaaagtac ttattaggta aatagaggtt ttgtatgcta	1615
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gattattgtt gactttgaca aaataagcta gacattttca ccttgttgcc acagagacat	1855
aacactacct caggaagctg agctgcttta aggacaacaa caacaaaatc agtgttacag	1915
tatggatgaa atctatgtta agcattctca gaataaggcc aagttttata gttgcattcc	1975
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 <212> PRT
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Val Asn Ser Val His Met Pro Thr Lys Ala Val Asp Pro Glu Ala Phe
20 25 30

Met Asn Ile Ser Glu Ile Ile Gln His Gln Gly Tyr Pro Cys Glu Glu
35 40 45

Tyr Glu Val Ala Thr Glu Asp Gly Tyr Ile Leu Ser Val Asn Arg Ile
50 55 60

Pro Arg Gly Leu Val Gln Pro Lys Lys Thr Gly Ser Arg Pro Val Val
65 70 75 80

Leu Leu Gln His Gly Leu Val Gly Gly Ala Ser Asn Trp Ile Ser Asn
85 90 95

Leu Pro Asn Asn Ser Leu Gly Phe Ile Leu Ala Asp Ala Gly Phe Asp
100 105 110

Val Trp Met Gly Asn Ser Arg Gly Asn Ala Trp Ser Arg Lys His Lys
115 120 125

Thr Leu Ser Ile Asp Gln Asp Glu Phe Trp Ala Phe Ser Tyr Asp Glu
130 135 140

Met Ala Arg Phe Asp Leu Pro Ala Val Ile Asn Phe Ile Leu Gln Lys
145 150 155 160

Thr Gly Gln Glu Lys Ile Tyr Tyr Val Gly Tyr Ser Gln Gly Thr Thr
165 170 175

Met Gly Phe Ile Ala Phe Ser Thr Met Pro Glu Leu Ala Gln Lys Ile
180 185 190

Lys Met Tyr Phe Ala Leu Ala Pro Ile Ala Thr Val Lys His Ala Lys
195 200 205

Ser Pro Gly Thr Lys Phe Leu Leu Leu Pro Asp Met Met Ile Lys Gly
210 215 220

Leu Phe Gly Lys Lys Glu Phe Leu Tyr Gln Thr Arg Phe Leu Arg Gln
225 230 235 240

Leu Val Ile Tyr Leu Cys Gly Gln Val Ile Leu Asp Gln Ile Cys Ser
245 250 255

Asn Ile Met Leu Leu Leu Gly Gly Phe Asn Thr Asn Asn Met Asn Met
260 265 270

Ser Arg Ala Ser Val Tyr Ala Ala His Thr Leu Ala Gly Thr Ser Val
275 280 285

Gln Asn Ile Leu His Trp Ser Gln Ala Val Asn Ser Gly Glu Leu Arg
290 295 300

Ala Phe Asp Trp Gly Ser Glu Thr Lys Asn Leu Glu Lys Cys Asn Gln
305 310 315 320

Pro Thr Pro Val Arg Tyr Arg Val Arg Asp Met Thr Val Pro Thr Ala
325 330 335

Met Trp Thr Gly Gly Gln Asp Trp Leu Ser Asn Pro Glu Asp Val Lys
340 345 350

Met Leu Leu Ser Glu Val Thr Asn Leu Ile Tyr His Lys Asn Ile Pro
355 360 365

Glu Trp Ala His Val Asp Phe Ile Trp Gly Leu Asp Ala Pro His Arg
370 375 380

Met Tyr Asn Glu Ile Ile His Leu Met Gln Gln Glu Glu Thr Asn Leu
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Ser Gln Gly Arg Cys Glu Ala Val Leu
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Met Gln Ala Lys Tyr Ser Ser Thr Arg Asp
1 5 10

atg	ctg	gat	gat	gaa	ggg	gac	acc	acc	atg	agc	ctg	cat	tct	caa	gcc	159
Met	Leu	Asp	Asp	Asp 15	Gly	Asp	Thr	Thr	Met 20	Ser	Leu	His	Ser	Gln 25	Ala	
tct	gcc	aca	act	cgg	cat	cca	gag	ccc	cgg	cgc	aca	gag	cac	agg	gct	207
Ser	Ala	Thr	Thr 30	Arg	His	Pro	Glu	Pro 35	Arg	Arg	Thr	Glu	His 40	Arg	Ala	
ccc	tct	tca	acg	tgg	cga	cca	gtg	gcc	ctg	acc	ctg	ctg	act	ttg	tgc	255
Pro	Ser	Ser 45	Thr	Trp	Arg	Pro	Val 50	Ala	Leu	Thr	Leu	Leu 55	Thr	Leu	Cys	
ttg	gtg	ctg	ctg	ata	ggg	ctg	gca	gcc	ctg	ggg	ctt	ttg	ttt	ttt	cag	303
Leu	Val 60	Leu	Leu	Ile	Gly	Leu 65	Ala	Ala	Leu	Gly	Leu 70	Leu	Phe	Phe	Gln	
tac	tac	cag	ctc	tcc	aat	act	ggg	caa	gac	acc	att	tct	caa	atg	gaa	351
Tyr 75	Tyr	Gln	Leu	Ser	Asn 80	Thr	Gly	Gln	Asp	Thr 85	Ile	Ser	Gln	Met	Glu 90	
gaa	aga	tta	gga	aat	acg	tcc	caa	gag	ttg	caa	tct	ctt	caa	gtc	cag	399
Glu	Arg	Leu	Gly	Asn 95	Thr	Ser	Gln	Glu	Leu 100	Gln	Ser	Leu	Gln	Val 105	Gln	
aat	ata	aag	ctt	gca	gga	agt	ctg	cag	cat	gtg	gct	gaa	aaa	ctc	tgt	447
Asn	Ile	Lys	Leu 110	Ala	Gly	Ser	Leu	Gln 115	His	Val	Ala	Glu	Lys 120	Leu	Cys	
cgt	gag	ctg	tat	aac	aaa	gct	gga	gca	cac	agg	tgc	agc	cct	tgt	aca	495
Arg	Glu	Leu 125	Tyr	Asn	Lys	Ala	Gly 130	Ala	His	Arg	Cys	Ser 135	Pro	Cys	Thr	
gaa	caa	tgg	aaa	tgg	cat	gga	gac	aat	tgc	tac	cag	ttc	tat	aaa	gac	543
Glu	Gln 140	Trp	Lys	Trp	His	Gly 145	Asp	Asn	Cys	Tyr	Gln 150	Phe	Tyr	Lys	Asp	
agc	aaa	agt	tgg	gag	gac	tgt	aaa	tat	ttc	tgc	ctt	agt	gaa	aac	tct	591
Ser 155	Lys	Ser	Trp	Glu	Asp 160	Cys	Lys	Tyr	Phe	Cys 165	Leu	Ser	Glu	Asn	Ser 170	
acc	atg	ctg	aag	ata	aac	aaa	caa	gaa	gac	ctg	gaa	ttt	gcc	gcg	tct	639
Thr	Met	Leu	Lys	Ile 175	Asn	Lys	Gln	Glu	Asp 180	Leu	Glu	Phe	Ala 185	Ala	Ser	
cag	agc	tac	tct	gag	ttt	ttc	tac	tct	tat	tgg	aca	ggg	ctt	ttg	cgc	687
Gln	Ser	Tyr	Ser 190	Glu	Phe	Phe	Tyr	Ser 195	Tyr	Trp	Thr	Gly	Leu 200	Leu	Arg	
cct	gac	agt	ggc	aag	gcc	tgg	ctg	tgg	atg	gat	gga	acc	cct	ttc	act	735
Pro	Asp	Ser 205	Gly	Lys	Ala	Trp	Leu 210	Trp	Met	Asp	Gly	Thr 215	Pro	Phe	Thr	
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Ser	Glu 220	Leu	Phe	His	Ile	Ile 225	Ile	Asp	Val	Thr	Ser 230	Pro	Arg	Ser	Arg	
gac	tgt	gtg	gcc	atc	ctt	aat	ggg	atg	atc	ttc	tca	aag	gac	tgc	aaa	831
Asp 235	Cys	Val	Ala	Ile	Leu 240	Asn	Gly	Met	Ile	Phe 245	Ser	Lys	Asp	Cys	Lys 250	
gaa	ttg	aag	cgt	tgt	gtc	tgt	gag	aga	agg	gca	gga	atg	gtg	aag	cca	879
Glu	Leu	Lys	Arg	Cys 255	Val	Cys	Glu	Arg	Arg 260	Ala	Gly	Met	Val	Lys 265	Pro	

gag agc ctc cat gtc ccc cct gaa aca tta ggc gaa ggt gac	921
Glu Ser Leu His Val Pro Pro Glu Thr Leu Gly Glu Gly Asp	
270 275 280	
tgattcgccc tctgcaacta caaatagcag agtgagccag gcggtgcca agcaagggt	981
agttgagaca ttgggaaatg gaacataatc aggaaagact atctctctga ctagtacaaa	1041
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<400> 23
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 1 5 10 15

Asp Thr Thr Met Ser Leu His Ser Gln Ala Ser Ala Thr Thr Arg His
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Pro Glu Pro Arg Arg Thr Glu His Arg Ala Pro Ser Ser Thr Trp Arg
35 40 45

Pro Val Ala Leu Thr Leu Leu Thr Leu Cys Leu Val Leu Leu Ile Gly
50 55 60

Leu Ala Ala Leu Gly Leu Leu Phe Phe Gln Tyr Tyr Gln Leu Ser Asn
65 70 75 80

Thr Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr
85 90 95

Ser Gln Glu Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala Gly
100 105 110

Ser Leu Gln His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn Lys
115 120 125

Ala Gly Ala His Arg Cys Ser Pro Cys Thr Glu Gln Trp Lys Trp His
130 135 140

Gly Asp Asn Cys Tyr Gln Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp
145 150 155 160

Cys Lys Tyr Phe Cys Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn
165 170 175

Lys Gln Glu Asp Leu Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe
180 185 190

Phe Tyr Ser Tyr Trp Thr Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala
195 200 205

Trp Leu Trp Met Asp Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile
210 215 220

Ile Ile Asp Val Thr Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu
225 230 235 240

Asn Gly Met Ile Phe Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys Val
245 250 255

Cys Glu Arg Arg Ala Gly Met Val Lys Pro Glu Ser Leu His Val Pro
260 265 270

Pro Glu Thr Leu Gly Glu Gly Asp
275 280

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<210> 24
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<212> DNA
<213> Homo sapiens
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gaa ctg ttc cat att ata ata gat gtc acc agc cca aga agc aga gac Glu Leu Phe His Ile Ile Ile Asp Val Thr Ser Pro Arg Ser Arg Asp 250 255 260	823
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Thr Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr 85 90 95	

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Ser Leu Gln His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn Lys
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Ser Leu Arg Gln Leu Pro His Met Gly Glu Ser Ala Ala Ala His Arg
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Cys Ser Pro Cys Thr Glu Gln Trp Lys Trp His Gly Asp Asn Cys Tyr
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Gln Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp Cys Lys Tyr Phe Cys
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Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn Lys Gln Glu Asp Leu
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Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe Phe Tyr Ser Tyr Trp
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Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile Ile Ile Asp Val Thr
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Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu Asn Gly Met Ile Phe
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Asp Ser Gly Lys Ala Trp Leu Trp Met Asp Gly Thr Pro Phe Thr Ser
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Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr Ser
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Gln Glu Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala Gly Ser
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Gly Ala His Arg Cys Ser Pro Cys Thr Glu Gln Trp Lys Trp His Gly
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Asp Asn Cys Tyr Gln Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp Cys
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Lys Tyr Phe Cys Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn Lys
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Tyr Ser Tyr Trp Thr Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala Trp
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Leu Trp Met Asp Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile Ile
180 185 190

Ile Asp Val Thr Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu Asn
195 200 205

Gly Met Ile Phe Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys Val Cys
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Glu Thr Leu Gly Glu Gly Asp
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Trp Gly Leu Leu Leu Cys Leu Leu Cys Ser Ser Cys Leu Gly Ser Pro
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Ser Pro Ser Thr Gly Pro Glu Lys Lys Ala Gly Ser Gln Gly Leu Arg
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Ile Gln Arg Ala Gly Glu Trp Gly Thr Ile Cys Asp Asp Asp Phe Thr
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ctg cag gct gcc cac atc ctc tgc cgg gag ctg ggc ttc aca gag gcc      471
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Thr Gly Trp Thr His Ser Ala Lys Tyr Gly Pro Gly Thr Gly Arg Ile
95 100 105

tgg ctg gac aac ttg agc tgc agt ggg acc gag cag agt gtg act gaa      567
Trp Leu Asp Asn Leu Ser Cys Ser Gly Thr Glu Gln Ser Val Thr Glu
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tgt gcc tcc cgg ggc tgg ggg aac agt gac tgt acg cac gat gag gat      615
Cys Ala Ser Arg Gly Trp Gly Asn Ser Asp Cys Thr His Asp Glu Asp
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Ala Gly Val Ile Cys Lys Asp Gln Arg Leu Pro Gly Phe Ser Asp Ser
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35 40 45

Phe Pro Arg Lys Pro Tyr Glu Gly Arg Val Glu Ile Gln Arg Ala Gly
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 Ser Cys Ser Gly Thr Glu Gln Ser Val Thr Glu Cys Ala Ser Arg Gly
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 Trp Gly Asn Ser Asp Cys Thr His Asp Glu Asp Ala Gly Val Ile Cys
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 Glu His His Leu Gln Val Glu Glu Val Arg Ile Arg Pro Ala Val Gly
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 Gln Ile Gly Gly Pro Gly Pro Leu Arg Trp Gly Leu Ile Cys Gly Asp
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 Gly Tyr Ala Asn His Gly Leu Gln Glu Thr Trp Tyr Trp Asp Ser Gly
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Arg Pro Lys Ala Gly Arg His Ser Trp Val Trp His Glu Cys His Gly
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His Tyr His Ser Met Asp Phe Phe Thr His Tyr Asp Ile Leu Thr Pro
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Asp Thr Glu Cys Gln Glu Asp Val Ser Lys Arg Tyr Glu Cys Ala Asn
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Phe Thr Asn Asn Ala Met Lys Cys Asn Cys Lys Tyr Asp Gly His Arg
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Gly	Thr	Asn	Lys	Cys	Val	His	Leu	Ser	Gln	Leu	Cys	Asn	Gly	Val	Leu	
		125					130					135				
gac	tgc	cca	gat	ggg	tat	gac	gaa	gga	gta	cat	tgt	cag	gaa	ctg	tta	1323
Asp	Cys	Pro	Asp	Gly	Tyr	Asp	Glu	Gly	Val	His	Cys	Gln	Glu	Leu	Leu	
		140				145					150					
tcc	aat	tgc	caa	cag	ctg	aat	tgt	cag	tat	aaa	tgt	aca	atg	gtc	aga	1371
Ser	Asn	Cys	Gln	Gln	Leu	Asn	Cys	Gln	Tyr	Lys	Cys	Thr	Met	Val	Arg	
	155				160					165				170		
aat	agt	aca	aga	tgt	tac	tgt	gag	gat	gga	ttc	gaa	ata	aca	gaa	gat	1419
Asn	Ser	Thr	Arg	Cys	Tyr	Cys	Glu	Asp	Gly	Phe	Glu	Ile	Thr	Glu	Asp	
			175						180					185		
ggg	aga	agc	tgt	aaa	gat	caa	gat	gaa	tgt	gct	gtt	tat	ggg	aca	tgc	1467
Gly	Arg	Ser	Cys	Lys	Asp	Gln	Asp	Glu	Cys	Ala	Val	Tyr	Gly	Thr	Cys	
			190					195					200			
agc	cag	acc	tgc	aga	aac	aca	cat	gga	tcc	tac	act	tgc	agt	tgt	gtg	1515
Ser	Gln	Thr	Cys	Arg	Asn	Thr	His	Gly	Ser	Tyr	Thr	Cys	Ser	Cys	Val	
		205					210					215				
gaa	ggc	tac	cta	atg	cag	cca	gac	aac	aga	tct	tgc	aag	gct	aaa	att	1563
Glu	Gly	Tyr	Leu	Met	Gln	Pro	Asp	Asn	Arg	Ser	Cys	Lys	Ala	Lys	Ile	
		220					225					230				
gaa	cct	aca	gat	aga	cca	cct	ata	cta	tta	att	gca	aat	ttt	gaa	aca	1611
Glu	Pro	Thr	Asp	Arg	Pro	Pro	Ile	Leu	Leu	245	Ile	Ala	Asn	Phe	Glu	Thr
		235				240									250	
att	gag	gtt	ttc	tat	ctt	aat	gga	agt	aaa	atg	gca	act	cta	agc	tca	1659
Ile	Glu	Val	Phe		255	Leu	Asn	Gly	Ser	Lys	Met	Ala	Thr	Leu	Ser	
								260						265		
gtc	aat	gga	aat	gaa	att	cat	act	ctg	gat	ttt	att	tat	aat	gaa	gat	1707
Val	Asn	Gly	Asn	Glu	Ile	His	Thr	Leu	Asp	Phe	Ile	Tyr	Asn	Glu	Asp	
			270					275						280		

gtg att tgt tgg att gaa tca aga gaa tct tca aat caa ctc aaa tgt Val Ile Cys Trp Ile Glu Ser Arg Glu Ser Ser Asn Gln Leu Lys Cys 285 290 295	1755
atc cag ata aca aaa gca gga gga tta aca gat gaa tgg aca atc aat Ile Gln Ile Thr Lys Ala Gly Gly Leu Thr Asp Glu Trp Thr Ile Asn 300 305 310	1803
att ctt caa tcc ttc cac aat gtg caa caa atg gcg att gac tgg ctc Ile Leu Gln Ser Phe His Asn Val Gln Gln Met Ala Ile Asp Trp Leu 315 320 325 330	1851
act cga aat ctc tat ttt gtg gac cat gtc ggt gac cgg atc ttt gtt Thr Arg Asn Leu Tyr Phe Val Asp His Val Gly Asp Arg Ile Phe Val 335 340 345	1899
tgt aat tcc aac ggt tct gta tgt gtc acc ctg att gat ctg gag ctt Cys Asn Ser Asn Gly Ser Val Cys Val Thr Leu Ile Asp Leu Glu Leu 350 355 360	1947
cac aat cct aaa gca ata gca gta gat cca ata gca gga aaa ctt ttc His Asn Pro Lys Ala Ile Ala Val Asp Pro Ile Ala Gly Lys Leu Phe 365 370 375	1995
ttt act gac tac ggg aat gtc gcc aaa gtg gag aga tgt gac atg gat Phe Thr Asp Tyr Gly Asn Val Ala Lys Val Glu Arg Cys Asp Met Asp 380 385 390	2043
ggg atg aac cga aca agg ata att gat tca aag aca gag cag cca gct Gly Met Asn Arg Thr Arg Ile Ile Asp Ser Lys Thr Glu Gln Pro Ala 395 400 405 410	2091
gca ctg gca cta gac cta gtc aac aaa ttg gtt tac tgg gta gat ctt Ala Leu Ala Leu Asp Leu Val Asn Lys Leu Val Tyr Trp Val Asp Leu 415 420 425	2139
tac ttg gac tat gtg gga gta gtg gac tat caa gga aaa aat aga cac Tyr Leu Asp Tyr Val Gly Val Val Asp Tyr Gln Gly Lys Asn Arg His 430 435 440	2187
act gtc att caa ggc aga caa gtc aga cat ctt tat ggt ata act gtg Thr Val Ile Gln Gly Arg Gln Val Arg His Leu Tyr Gly Ile Thr Val 445 450 455	2235
ttt gaa gat tat ttg tat gca acc aat tct gat aac tac aat atc gta Phe Glu Asp Tyr Leu Tyr Ala Thr Asn Ser Asp Asn Tyr Asn Ile Val 460 465 470	2283
agg ata aac cga ttt aat ggg act gat att cac tca tta att aaa att Arg Ile Asn Arg Phe Asn Gly Thr Asp Ile His Ser Leu Ile Lys Ile 475 480 485 490	2331
gag aat gct tgg gga atc cga att tat caa aaa aga act caa cca aca Glu Asn Ala Trp Gly Ile Arg Ile Tyr Gln Lys Arg Thr Gln Pro Thr 495 500 505	2379
gtc aga agc cat gca tgt gaa gtc gat cca tat gga atg cca ggg ggc Val Arg Ser His Ala Cys Glu Val Asp Pro Tyr Gly Met Pro Gly Gly 510 515 520	2427
tgt tca cac atc tgt cta ctc agc agc agt tac aaa act cgg act tgt Cys Ser His Ile Cys Leu Leu Ser Ser Ser Tyr Lys Thr Arg Thr Cys 525 530 535	2475

cgc tgc agg act ggc ttc aac ttg gga agt gat ggc agg tca tgc aaa Arg Cys Arg Thr Gly Phe Asn Leu Gly Ser Asp Gly Arg Ser Cys Lys 540 545 550	2523
aga cca aag aat gag ttg ttc ctc ttt tat ggg aaa gga cgc cca gga Arg Pro Lys Asn Glu Leu Phe Leu Phe Tyr Gly Lys Gly Arg Pro Gly 555 560 565 570	2571
att gtt aga gga atg gac ttg aat acc aag ata gct gat gaa tac atg Ile Val Arg Gly Met Asp Leu Asn Thr Lys Ile Ala Asp Glu Tyr Met 575 580 585	2619
atc ccc ata gaa aat ctg gta aac cct cgt gct tta gac ttt cac gca Ile Pro Ile Glu Asn Leu Val Asn Pro Arg Ala Leu Asp Phe His Ala 590 595 600	2667
gaa acc aat tac atc tac ttt gct gac acc acc agt ttc cta att ggc Glu Thr Asn Tyr Ile Tyr Phe Ala Asp Thr Thr Ser Phe Leu Ile Gly 605 610 615	2715
cgg cag aag ata gat ggc aca gag aga gaa acc atc ctg aaa gat gat Arg Gln Lys Ile Asp Gly Thr Glu Arg Glu Thr Ile Leu Lys Asp Asp 620 625 630	2763
ctg gat aat gta gag ggc att gct gtg gac tgg att gga aat aat ctt Leu Asp Asn Val Glu Gly Ile Ala Val Asp Trp Ile Gly Asn Asn Leu 635 640 645 650	2811
tac tgg acc aat gat ggc cat agg aaa acc att aat gtg gct agg ctg Tyr Trp Thr Asn Asp Gly His Arg Lys Thr Ile Asn Val Ala Arg Leu 655 660 665	2859
gaa aaa gct tct cag agt cgg aag act ctt tta gag ggt gaa atg tct Glu Lys Ala Ser Gln Ser Arg Lys Thr Leu Leu Glu Gly Glu Met Ser 670 675 680	2907
cat ccc aga gga att gtg gtg gat cca att aat ggt tgg atg tat tgg His Pro Arg Gly Ile Val Val Asp Pro Ile Asn Gly Trp Met Tyr Trp 685 690 695	2955
aca gac tgg gag gaa gat gaa ata gat gac agc gtg gga agg att gag Thr Asp Trp Glu Glu Asp Glu Ile Asp Asp Ser Val Gly Arg Ile Glu 700 705 710	3003
aag gcc tgg atg gat gga ttc aat cgg cag att ttt gtg act tca aag Lys Ala Trp Met Asp Gly Phe Asn Arg Gln Ile Phe Val Thr Ser Lys 715 720 725 730	3051
atg ctg tgg cca aac ggt tta act ctg gac ttt cac acc aac aca tta Met Leu Trp Pro Asn Gly Leu Thr Leu Asp Phe His Thr Asn Thr Leu 735 740 745	3099
tac tgg tgt gat gcc tat tac gat cat att gaa aaa gta ttt ttg aat Tyr Trp Cys Asp Ala Tyr Tyr Asp His Ile Glu Lys Val Phe Leu Asn 750 755 760	3147
ggg act cac agg aag att gtt tac agt ggg aga gag ttg aac cac cct Gly Thr His Arg Lys Ile Val Tyr Ser Gly Arg Glu Leu Asn His Pro 765 770 775	3195
ttc gga ctg tcg cat cat gga aat tat gtg ttc tgg act gat tat atg Phe Gly Leu Ser His His Gly Asn Tyr Val Phe Trp Thr Asp Tyr Met 780 785 790	3243

aat ggt tcc att ttt caa cta gat ttg ata aca agt gag gtg aca ttg Asn Gly Ser Ile Phe Gln Leu Asp Leu Ile Thr Ser Glu Val Thr Leu 795 800 805 810	3291
ctg agg cat gaa aga cca ccc cta ttt ggg ctt cag att tat gat cca Leu Arg His Glu Arg Pro Pro Leu Phe Gly Leu Gln Ile Tyr Asp Pro 815 820 825	3339
cga aag caa caa ggt gac aat atg tgc cga gta aat aat ggg ggc tgt Arg Lys Gln Gln Gly Asp Asn Met Cys Arg Val Asn Asn Gly Gly Cys 830 835 840	3387
agt aca ctt tgc ttg gct atc cca gga ggc cgg gtg tgt gct tgt gcc Ser Thr Leu Cys Leu Ala Ile Pro Gly Gly Arg Val Cys Ala Cys Ala 845 850 855	3435
gat aat caa ctt ttg gat gaa aat ggg aca act tgc aca ttt aat cct Asp Asn Gln Leu Leu Asp Glu Asn Gly Thr Thr Cys Thr Phe Asn Pro 860 865 870	3483
gga gaa gca cta cct cac ata tgt aaa gct ttt cgc tgc aaa Gly Glu Ala Leu Pro His Ile Cys Lys Ala Gly Glu Phe Arg Cys Lys 875 880 885 890	3531
aac aga cac tgt atc caa gct cgg tgg aaa tgt gat ggc gac gat gac Asn Arg His Cys Ile Gln Ala Arg Trp Lys Cys Asp Gly Asp Asp 895 900 905	3579
tgc cta gac gga agc gat gag gat tca gta aac tgc ttc aat cat agc Cys Leu Asp Gly Ser Asp Glu Asp Ser Val Asn Cys Phe Asn His Ser 910 915 920	3627
tgt cct gat gat cag ttt aaa tgc cag aat aat cgc tgc atc ccc aag Cys Pro Asp Asp Gln Phe Lys Cys Gln Asn Asn Arg Cys Ile Pro Lys 925 930 935	3675
aga tgg ctt tgt gat gga gct aat gac tgt ggg agc aat gaa gat gaa Arg Trp Leu Cys Asp Gly Ala Asn Asp Cys Gly Ser Asn Glu Asp Glu 940 945 950	3723
tcc aat caa act tgc aca gcc aga aca tgc cag gta gac cag ttt tct Ser Asn Gln Thr Cys Thr Ala Arg Thr Cys Gln Val Asp Gln Phe Ser 955 960 965 970	3771
tgc gga aat ggg cgt tgc att ccc aga gca tgg ctg tgt gac agg gaa Cys Gly Asn Gly Arg Cys Ile Pro Arg Ala Trp Leu Cys Asp Arg Glu 975 980 985	3819
gac gac tgt ggt gac cag aca gat gaa atg gca tct tgt gaa ttc cca Asp Asp Cys Gly Asp Gln Thr Asp Glu Met Ala Ser Cys Gly Phe Pro 990 995 1000	3867
act tgt gag cca cta acc caa ttc gta tgc aaa agt gga aga tgc Thr Cys Glu Pro Leu Thr Gln Phe Val Cys Lys Ser Gly Arg Cys 1005 1010 1015	3912
att agc agc aaa tgg cac tgc gac tct gat gac gac tgt ggg gac Ile Ser Ser Lys Trp His Cys Asp Ser Asp Asp Asp Cys Gly Asp 1020 1025 1030	3957
ggg agt gat gag gtg ggc tgt gtt cac tct tgc ttt gat aat cag Gly Ser Asp Glu Val Gly Cys Val His Ser Cys Phe Asp Asn Gln 1035 1040 1045	4002

ttc aga tgt Phe Arg Cys 1050	tcc agt ggc aga tgc Ser Ser Gly Arg Cys 1055	atc cca ggc cac tgg Ile Pro Gly His Trp 1060	gcc tgt Ala Cys	4047
gat ggt gac Asp Gly Asp 1065	aat gac tgt ggg gac Asn Asp Cys Gly Asp 1070	ttc agt gat gaa gcc Phe Ser Asp Glu Ala 1075	cag atc Gln Ile	4092
aat tgt act Asn Cys Thr 1080	aaa gaa gag att cat Lys Glu Glu Ile His 1085	tct cct gct ggt tgt Ser Pro Ala Gly Cys 1090	aac gga Asn Gly	4137
aat gaa ttt Asn Glu Phe 1095	cag tgc cac cct gat Gln Cys His Pro Asp 1100	ggg aat tgc gtt agt Gly Asn Cys Val Pro 1105	gat ttg Asp Leu	4182
tgg cgc tgt Trp Arg Cys 1110	gat gga gaa aaa gac Asp Gly Glu Lys Asp 1115	tgt gaa gat ggt ggt Cys Glu Asp Gly Ser 1120	gat gaa Asp Glu	4227
aaa ggt tgc Lys Gly Cys 1125	aat ggt acc ata cga Asn Gly Thr Ile Arg 1130	ttg tgt gac cac aaa Leu Cys Asp His Lys 1135	acc aag Thr Lys	4272
ttt tcc tgt Phe Ser Cys 1140	tgg agt aca ggg aga Trp Ser Thr Gly Arg 1145	tgc atc aac aaa gca Cys Ile Asn Lys Ala 1150	tgg gtg Trp Val	4317
tgt gat gga Cys Asp Gly 1155	gat att gat tgc gaa Asp Ile Asp Cys Glu 1160	gat cag tca gat gaa Asp Gln Ser Asp Ala 1165	gat gac Asp Asp	4362
tgt gac agt Cys Asp Ser 1170	ttc ttg tgt gga cca Phe Leu Cys Gly Pro 1175	ccc aag cat cct tgt Pro Lys His Pro Cys 1180	gct aat Ala Asn	4407
gac acc tca Asp Thr Ser 1185	gtc tgc ctg cag cca Val Cys Leu Gln Pro 1190	gag aaa ctc tgc aat Glu Lys Leu Cys Asn 1195	ggg aaa Gly Lys	4452
aag gat tgt Lys Asp Cys 1200	cct gat ggc tct gat Pro Asp Gly Ser Asp 1205	gaa ggc tat ctc tgt Glu Gly Tyr Leu Cys 1210	gat gag Asp Glu	4497
tgt tcg ctg Cys Ser Leu 1215	aac aat gga ggc tgt Asn Asn Gly Gly Cys 1220	agc aac cac tgt tct Ser Asn His Cys Cys 1225	gtt gtt Val Val	4542
cct gga aga Pro Gly Arg 1230	gga att gtc tgt tcc Gly Ile Val Cys Ser 1235	tgc cct gaa gga ctt Cys Pro Glu Gly Leu 1240	caa ctc Gln Leu	4587
aac aaa gac Asn Lys Asp 1245	aat aaa aca tgt gaa Asn Lys Thr Cys Glu 1250	att gtg gat tat tgt Ile Val Asp Tyr Cys 1255	agc aat Ser Asn	4632
cat cta aag His Leu Lys 1260	tgc agc caa gta tgt Cys Ser Gln Val Cys 1265	gag cag cac aag cac Glu Gln His Lys His 1270	aca gtc Thr Val	4677
aag tgc tca Lys Cys Ser 1275	tgt tat gaa ggt tgg Cys Tyr Glu Gly Trp 1280	aag ctg gat gta gac Lys Leu Asp Val Asp 1285	ggg gaa Gly Glu	4722

agt tgt aca	agt gtt gat cct ttt	gaa gca ttc atc atc	ttt tct	4767
Ser Cys Thr	Ser Val Asp Pro Phe	Glu Ala Phe Ile Ile	Phe Ser	
1290	1295	1300		
att cgt cat	gag atc aga agg att	gat ctt cac aaa aga	gac tat	4812
Ile Arg His	Glu Ile Arg Arg Ile	Asp Leu His Lys Arg	Asp Tyr	
1305	1310	1315		
agt cta ctt	gtt cct gga ttg aga	aac aca ata gca ctt	gat ttt	4857
Ser Leu Leu	Val Pro Gly Leu Arg	Asn Thr Ile Ala Leu	Asp Phe	
1320	1325	1330		
cac ttc aat	caa agt tta ctt tat	tgg aca gat gtt gta	gaa gac	4902
His Phe Asn	Gln Ser Leu Leu Tyr	Trp Thr Asp Val Val	Glu Asp	
1335	1340	1345		
aga ata tac	cgg gga aag ctt tct	gaa agt gga ggt gtc	agt gcc	4947
Arg Ile Tyr	Arg Gly Lys Leu Ser	Glu Ser Gly Gly Val	Ser Ala	
1350	1355	1360		
att gaa gtg	gtt gtg gag cat ggc	ctg gct act cca gaa	ggc ctg	4992
Ile Glu Val	Val Val Glu His Gly	Leu Ala Thr Pro Glu	Gly Leu	
1365	1370	1375		
aca gtc gac	tgg ata gca gga aac	ata tac tgg ata gac	agc aat	5037
Thr Val Asp	Trp Ile Ala Gly Asn	Ile Tyr Trp Ile Asp	Ser Asn	
1380	1385	1390		
ctg gac caa	atc gaa gtg gcc aaa	cta gat ggc tcc cta	aga act	5082
Leu Asp Gln	Ile Glu Val Ala Lys	Leu Asp Gly Ser Leu	Arg Thr	
1395	1400	1405		
aca cta ata	gca gga gcc atg gaa	cac ccc agg gcc att	gct ttg	5127
Thr Leu Ile	Ala Gly Ala Met Glu	His Pro Arg Ala Ile	Ala Leu	
1410	1415	1420		
gac cca aga	tat gga att ctt ttc	tgg aca gac tgg gat	gca aat	5172
Asp Pro Arg	Tyr Gly Ile Leu Phe	Trp Thr Asp Trp Asp	Ala Asn	
1425	1430	1435		
ttt cct cgc	att gaa tct gcc tct	atg agt ggt gct ggg	aga aaa	5217
Phe Pro Arg	Ile Glu Ser Ala Ser	Met Ser Gly Ala Gly	Arg Lys	
1440	1445	1450		
acc atc tat	aaa gac atg aaa act	ggg gct tgg cct aat	gga cta	5262
Thr Ile Tyr	Lys Asp Met Lys Thr	Gly Ala Trp Pro Asn	Gly Leu	
1455	1460	1465		
act gtg gac	cac ttt gag aaa agg	ata gtg tgg aca gac	gcc agg	5307
Thr Val Asp	His Phe Glu Lys Arg	Ile Val Trp Thr Asp	Ala Arg	
1470	1475	1480		
tca gat gct	att tat tca gcc ctc	tat gat gga aca aac	atg ata	5352
Ser Asp Ala	Ile Tyr Ser Ala Leu	Tyr Asp Gly Thr Asn	Met Ile	
1485	1490	1495		
gaa atc atc	cga ggt cat gaa tac	ctt tcc cat ccc ttt	gct gtg	5397
Glu Ile Ile	Arg Gly His Glu Tyr	Leu Ser His Pro Phe	Ala Val	
1500	1505	1510		
tct cta tat	ggg agt gaa gtc tac	tgg aca gac tgg agg	acc aac	5442
Ser Leu Tyr	Gly Ser Glu Val Tyr	Trp Thr Asp Trp Arg	Thr Asn	
1515	1520	1525		

aca ttg tcc Thr Leu 1530	aaa gcc aat aag tgg Lys Ala Asn Lys Trp 1535	aca ggg cag aat gtc Thr Gly Gln Asn Val 1540	agt gtg Ser Val 5487
att cag aaa Ile Gln Lys 1545	acc agt gca cag cca Thr Ser Ala Gln Pro 1550	ttt gac ctt cag ata Phe Asp Leu Gln Ile 1555	tac cat Tyr His 5532
ccc agt cgc Pro Ser Arg 1560	cag cca cag gct ccc Gln Pro Gln Ala Pro 1565	aat cct tgt gca gct Asn Pro Cys Ala Ala 1570	aat gat Asn Asp 5577
ggc aaa ggc Gly Lys Gly 1575	ccc tgc tct cac atg Pro Cys Ser His Met 1580	tgt cta atc aat cac Cys Leu Ile Asn His 1585	aat agg Asn Arg 5622
agt gct gcc Ser Ala Ala 1590	tgt gcg tgc ccc cac Cys Ala Cys Pro His 1595	ttg atg aag ctt tct Leu Met Lys Leu Ser 1600	tca gac Ser Asp 5667
aag aag acc Lys Lys Thr 1605	tgc tat gaa atg aaa Cys Tyr Glu Met Lys 1610	aaa ttt ctt ctt tat Lys Phe Leu Leu Tyr 1615	gca aga Ala Arg 5712
cgt tct gaa Arg Ser Glu 1620	atc aga gga gtg gat Ile Arg Gly Val Asp 1625	att gac aat cca tac Ile Asp Asn Pro Tyr 1630	ttt aac Phe Asn 5757
ttc atc acg Phe Ile Thr 1635	gca ttt aca gtc cct Ala Phe Thr Val Pro 1640	gat att gat gac gtt Asp Ile Asp Asp Val 1645	act gtg Thr Val 5802
ata gac ttc Ile Asp Phe 1650	gat gca tct gag gaa Asp Ala Ser Glu Glu 1655	cgt tta tac tgg aca Arg Leu Tyr Trp Thr 1660	gat att Asp Ile 5847
aaa aca caa Lys Thr Thr 1665	acc att aaa cga gct Thr Ile Lys Arg Ala 1670	ttt att aac gga act Phe Ile Asn Gly Thr 1675	ggg tta Gly Leu 5892
gaa act gtt Glu Thr Val 1680	att tca aga gat att Ile Ser Arg Asp Ile 1685	cag agt atc aga ggg Gln Ser Ile Arg Gly 1690	cta gca Leu Ala 5937
gtg gat tgg Val Asp Trp 1695	gtg tca cgt aat tta Val Ser Arg Asn Leu 1700	tac tgg att agc tca Tyr Trp Ile Ser Ser 1705	gaa ttt Glu Phe 5982
gat gaa acg Asp Glu Thr 1710	caa att aat gtg gca Gln Ile Asn Val Ala 1715	agg cta gat ggc tct Arg Leu Asp Gly Ser 1720	ttg aaa Leu Lys 6027
acc tca att Thr Ser Ile 1725	atc cat gga atc gat Ile His Gly Ile Asp 1730	aag cca cag tgt ctt Lys Pro Gln Cys Leu 1735	gca gct Ala Ala 6072
cac cca gtc His Pro Val 1740	agg gga aaa ctc tac Arg Gly Lys Leu Tyr 1745	tgg acc gat gga aac Trp Thr Asp Gly Asn 1750	aca att Thr Ile 6117
aac atg gca Asn Met Ala 1755	aat atg gat ggc agt Asn Met Asp Gly Ser 1760	aat agc aag att ctg Asn Ser Lys Ile Leu 1765	ttt cag Phe Gln 6162

aat cag aag Asn Gln Lys 1770	gag cca gtt ggt cta Glu Pro Val Gly Leu 1775	tgc ata gac tat Ser Ile Asp Tyr 1780	gtg gaa aac Val Glu Asn 1780	6207
aag ctt tat Lys Leu Tyr 1785	tgg atc agt tgc ggg Trp Ile Ser Ser Gly 1790	aat gga acc ata Asn Gly Thr Ile Asn 1795	aga tgc Arg Cys 1795	6252
aac ctg gat Asn Leu Asp 1800	ggg ggt aat tta gaa Gly Gly Asn Leu Glu 1805	gta atc gag tca atg Val Ile Glu Ser Met 1810	aaa gaa Lys Lys Glu 1810	6297
gaa tta aca Glu Leu Thr 1815	aaa gct aca gcc cta Lys Ala Thr Ala Leu 1820	acc atc atg gat Thr Ile Met Asp 1825	aaa ctg Lys Leu 1825	6342
tgg tgg gca Trp Trp Ala 1830	gac caa aac tta gcc Asp Gln Asn Leu Ala 1835	cag cta gga acc tgc Gln Leu Gly Thr Cys 1840	agc aaa Ser Lys 1840	6387
aga gac gga Arg Asp Gly 1845	aga aac ccc acc atc Arg Asn Pro Thr Ile 1850	cta cgg aat aag act Leu Arg Asn Lys Thr 1855	tct ggg Ser Gly 1855	6432
gta gtt cat Val Val His 1860	atg aaa gtc tat gat Met Lys Val Tyr Asp 1865	aaa gaa gca cag caa Lys Glu Ala Gln Gly 1870	ggc agc Gly Ser 1870	6477
aat tcc tgc Asn Ser Cys 1875	caa cta aac aat ggt Gln Leu Asn Asn Gly 1880	gga tgc tct caa ctt Gly Cys Ser Gln Leu 1885	tgt tta Cys Leu 1885	6522
cca aca tct Pro Thr Ser 1890	gaa act aca agg act Glu Thr Thr Arg Thr 1895	tgt atg tgt aca gtg Cys Met Cys Thr Val 1900	gga tat Gly Tyr 1900	6567
tat ctc caa Tyr Leu Gln 1905	aag aac cgt atg tca Lys Asn Arg Met Ser 1910	tgt caa ggt ata gaa Cys Gln Gly Ile Glu 1915	tca ttt Ser Phe 1915	6612
ctt atg tac Leu Met Tyr 1920	tct gtt cat gaa gga Ser Val His Glu Gly 1925	atc agg gga ata cct Ile Arg Gly Ile Pro 1930	ctt gaa Leu Glu 1930	6657
cca agt gac Pro Ser Asp 1935	aaa atg gat gct ttg Lys Met Asp Ala Leu 1940	atg cct ata tca gga Met Pro Ile Ser Gly 1945	act tca Thr Ser 1945	6702
ttt gcc gtg Phe Ala Val 1950	gga ata gat ttc cat Gly Ile Asp Phe His 1955	gca gaa aat gat acc Ala Glu Asn Asp Thr 1960	atc tac Ile Tyr 1960	6747
tgg aca gac Trp Thr Asp 1965	atg ggc ttc aat aaa Met Gly Phe Asn Lys 1970	att agc aga gct aaa Ile Ser Arg Ala Lys 1975	aga gat Arg Asp 1975	6792
cag act tgg Gln Thr Trp 1980	aaa gaa gat atc att Lys Glu Asp Ile Ile 1985	acc aat ggc ttg gga Thr Asn Gly Leu Thr 1990	aga gtg Arg Val 1990	6837
gaa ggg ata Glu Gly Ile 1995	gct gtt gac tgg att Ala Val Asp Trp Ile 2000	gct ggt aac ata tat Ala Gly Asn Ile Tyr 2005	tgg aca Trp Thr 2005	6882

gat cat ggt ttc aac tta att gaa gtt gca aga ctc aat ggt tct Asp His Gly Phe Asn Leu Ile Glu Val Ala Arg Leu Asn Gly Ser 2010 2015 2020	6927
ttc cgt tat gta att att tcc caa ggc ctg gat caa cca aga tct Phe Arg Tyr Val Ile Ile Ser Gln Gly Leu Asp Gln Pro Arg Ser 2025 2030 2035	6972
ata gct gtg cac cca gag aaa ggc ctc ttg ttc tgg act gaa tgg Ile Ala Val His Pro Glu Lys Gly Leu Leu Phe Trp Thr Glu Trp 2040 2045 2050	7017
gga caa atg ccc tgt att gga aag gct cgc ttg gat ggc tca gag Gly Gln Met Pro Cys Ile Gly Lys Ala Arg Leu Asp Gly Ser Glu 2055 2060 2065	7062
aag gtt gtc ctt gta agc atg gga ata gca tgg ccg aat ggc atc Lys Val Val Leu Val Ser Met Gly Ile Ala Trp Pro Asn Gly Ile 2070 2075 2080	7107
tcc atc gac tat gag gaa aat aaa ttg tac tgg tgt gat gct cgc Ser Ile Asp Tyr Glu Glu Asn Lys Leu Tyr Trp Cys Asp Ala Arg 2085 2090 2095	7152
aca gac aag ata gag aga atc gac ctt gag act gga ggg aat cgc Thr Asp Lys Ile Glu Arg Ile Asp Leu Glu Thr Gly Gly Asn Arg 2100 2105 2110	7197
gag atg gtg ctg tca gga agc aat gtg gat atg ttt tca gtt gca Glu Met Val Leu Ser Gly Ser Asn Val Asp Met Phe Ser Val Ala 2115 2120 2125	7242
gtc ttt ggg gct tac atc tac tgg tct gac aga gca cat gca aac Val Phe Gly Ala Tyr Ile Tyr Trp Ser Asp Arg Ala His Ala Asn 2130 2135 2140	7287
ggg tct gtc aga agg ggc cac aag aat gat gcc aca gaa acg ata Gly Ser Val Arg Arg Gly His Lys Asn Asp Ala Thr Glu Thr Ile 2145 2150 2155	7332
acc atg aga acc ggc ctt gga gtc aac ctg aag gag gtt aaa ata Thr Met Arg Thr Gly Leu Gly Val Asn Leu Lys Glu Val Lys Ile 2160 2165 2170	7377
ttt aac cga gta aga gag aaa ggg acc aat gtt tgt gcc agg gac Phe Asn Arg Val Arg Glu Lys Gly Thr Asn Val Cys Ala Arg Asp 2175 2180 2185	7422
aat ggt ggc tgt aag caa ctc tgt ctt tat cga gga aat tcc cgg Asn Gly Cys Lys Gln Leu Cys Leu Tyr Arg Gly Asn Ser Arg 2190 2195 2200	7467
aga act tgt gct tgt gcc cat gga tat ttg gca gaa gat gga gtt Arg Thr Cys Ala Cys Ala His Gly Tyr Leu Ala Glu Asp Gly Val 2205 2210 2215	7512
act tgc ctg agg cat gaa ggc tat tta ctg tat tca gga aga aca Thr Cys Leu Arg His Glu Gly Tyr Leu Leu Tyr Ser Glu Arg Thr 2220 2225 2230	7557
ata tta aaa agt ata cat ctt tct gat gaa acc aat tta aat tcc Ile Leu Lys Ser Ile His Leu Ser Asp Glu Thr Asn Leu Asn Ser 2235 2240 2245	7602

cca ata agg Pro Ile Arg 2250	cca tat gag aat Pro Tyr Glu Asn 2255	cca cgt tat ttc aag aat Pro Arg Tyr Phe Lys Asn 2260	gtc ata Val Ile	7647
gcc ttg gct Ala Leu Ala 2265	ttt gac tat aat Phe Asp Tyr Asn 2270	caa aga aga aaa ggt acc Gln Arg Arg Lys Gly Thr 2275	aac cga Asn Arg	7692
atc ttt tac Ile Phe Tyr 2280	agt gat gca cac Ser Asp Ala His 2285	ttt gga aat ata cag ctt Phe Gly Asn Ile Gln Leu 2290	att aaa Ile Lys	7737
gac aac tgg Asp Asn Trp 2295	gaa gac aga caa gta Glu Asp Arg Gln Val 2300	att gtt gaa aat gtg Ile Val Glu Asn Val 2305	ggg tct Gly Ser	7782
gtg gaa gga Val Glu Gly 2310	ctt gcc tat cac Leu Ala Tyr His 2315	aga gcc tgg gat aca Ala Trp Asp Thr 2320	ctg tac tgg Leu Tyr Trp	7827
aca agc tct Thr Ser Ser 2325	tcc acc acc tca tcc Thr Thr Ser Ser 2330	atc acc aga cac act Ile Thr Arg His Thr 2335	gtg gac cag Val Asp Gln	7872
act cgg cct Thr Arg Pro 2340	gga gca ttt gac Gly Ala Phe Asp Arg 2345	gaa gct gtc atc acc Glu Ala Val Ile Thr 2350	atg tca Met Ser	7917
gaa gat gac Glu Asp Asp 2355	cat cca cat gtg His Pro His Val 2360	cta gcc ttg gat gaa tgt Leu Ala Leu Asp Glu 2365	caa aat Gln Asn	7962
tta atg ttt Leu Met Phe 2370	tgg acc aac tgg Trp Thr Asn Trp 2375	gaa caa cat cca agt Glu Gln His Pro Ser 2380	atc atg Ile Met	8007
aga tct act Arg Ser Thr 2385	ctg act ggg aaa Leu Thr Gly Lys 2390	gct caa gtg gtg gtc Ala Gln Val Val Val 2395	agt aca Ser Thr	8052
gac ata ctc Asp Ile Leu 2400	act cca aat gga Thr Pro Asn Gly 2405	ctt act atc gac tac Leu Thr Ile Asp Tyr 2410	cgt gca gag Arg Ala Glu	8097
aag ctg tat Lys Leu Tyr 2415	ttc tca gat ggc Phe Ser Asp Gly 2420	agt cta gga aaa att Ser Gly Lys Ile 2425	gaa agg tgt Glu Arg Cys	8142
gaa tac gat Glu Tyr Asp 2430	gga tcc cag aga Gly Ser Gln Arg 2435	cat gtg ata gtt aaa His Val Ile Val Lys 2440	tct ggg cca Ser Gly Pro	8187
ggg act ttc Gly Thr Thr 2445	ctc agt ttg gct Leu Ser Leu Ala 2450	gtt tat gac aat tat Val Tyr Asp Asn Tyr 2455	ttc tgg Phe Thr	8232
tcg gac tgg Ser Asp Trp 2460	gga aga aga gct Gly Arg Arg Ala 2465	ata ctg cgg tcc aac Ile Leu Arg Ser Asn 2470	aag tac aca Lys Tyr Thr	8277
gga gga gat Gly Gly Asp 2475	aca aaa att ctt Thr Lys Ile Leu 2480	cgt tcc gat att cca Arg Ser Asp Ile Pro 2485	cat cag cca His Gln Pro	8322

atg gga atc Met Gly Ile 2490	ata gct gtt gcc aat Ile Ala Val Ala Asn 2495	gac acc aat agc tgt Asp Thr Asn Ser Cys 2500	gaa ctt Glu Leu	8367
tct cca tgt Ser Pro Cys 2505	gca tta ttg aat gga Ala Leu Leu Asn Gly 2510	ggc tgc cat gac ttg Gly Cys His Asp Leu 2515	tgc ctt Cys Leu	8412
tta act ccc Leu Thr Pro 2520	aat ggg aga gtg aat Asn Gly Arg Val Asn 2525	tgt tcc tgc aga ggg Cys Ser Cys Arg Gly 2530	gac cga Asp Arg	8457
ata ttg cta Ile Leu Leu 2535	gag gac aac aga tgt Glu Asp Asn Arg Cys 2540	gtg act aaa aat tcc Val Thr Lys Asn Ser 2545	tcc tgc Ser Cys	8502
aac gct tat Asn Ala Tyr 2550	tcg gag ttt gaa tgt Ser Glu Phe Glu Cys 2555	gga aat ggt gag tgc Gly Asn Gly Glu Cys 2560	att gac Ile Asp	8547
tac cag ctc Tyr Gln Leu 2565	acc tgt gat ggc att Thr Cys Asp Gly Ile 2570	cct cac tgt aaa gat Pro His Cys Lys Asp 2575	aaa tca Lys Ser	8592
gat gaa aaa Asp Glu Lys 2580	ctg ctc tac tgt gaa Leu Leu Tyr Cys Glu 2585	aac aga agc tgt cga Asn Arg Ser Cys Arg 2590	aga ggc Arg Gly	8637
ttc aag cca Phe Lys Pro 2595	tgc tat aat cgc cgc Cys Tyr Asn Arg Arg 2600	tgc att cct cat ggc Cys Ile Pro His Gly 2605	aag tta Lys Leu	8682
tgt gat gga Cys Asp Gly 2610	gaa aat gac tgc gga Glu Asn Asp Cys Gly 2615	gac aac tct gat gaa Asp Asn Ser Asp Glu 2620	tta gat Leu Asp	8727
tgt aaa gtt Cys Lys Val 2625	tca acc tgt gcc acg Ser Thr Cys Ala Thr 2630	gtt gag ttc cgc tgt Val Glu Phe Arg Cys 2635	gca gat Ala Asp	8772
ggg act tgt Gly Thr 2640	att cca aga tca gca Ile Pro Arg Ser Ala 2645	cga tgc aac cag aac Arg Cys Asn Gln Asn 2650	ata gat Ile Asp	8817
tgt gca gat Cys Ala Asp 2655	gct tca gat gaa aag Ala Ser Asp Glu Lys 2660	aac tgc aat aac aca Asn Cys Asn Asn Thr 2665	gac tgc Asp Cys	8862
aca cat ttc Thr His Phe 2670	tat aag ctt gga gtg Tyr Lys Leu Gly Val 2675	aaa acc aca ggg ttc Lys Thr Thr Gly Phe 2680	ata aga Ile Arg	8907
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ggg tct aat Gly Ser Asn 2700	gac tgt gga gac tat Asp Cys Gly Asp Tyr 2705	tca gat gaa tta aag Ser Asp Glu Leu Lys 2710	tgc cca Cys Pro	8997
gtt cag aac Val Gln Asn 2715	aaa cac aaa tgt gaa Lys His Lys Cys Glu 2720	gaa aat tat ttt agt Glu Asn Tyr Phe Ser 2725	tgt cct Cys Pro	9042

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ccg gtc agt Pro Val Ser 2985	tat aag tgc aaa tgc Tyr Lys Cys Lys Cys 2990	tgg cct gga ttc Trp Pro Gly Phe 2995	caa ctg aag Gln Leu Lys 2982
gat gac ggc Asp Asp Gly 3000	aaa aca tgt gta gac Lys Thr Cys Val Asp 3005	att gat gaa tgc tct Ile Asp Glu Cys Ser 3010	tca ggc Ser Gly 2987
ttt ccc tgt Phe Pro Cys 3015	agc cag caa tgc atc Ser Gln Gln Cys Ile 3020	aat aca tac ggg act Asn Thr Tyr Gly Thr 3025	tac aag Tyr Lys 2994
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ggc tgc aaa Gly Cys Lys 3045	tcg ctc tca gat gaa Ser Leu Ser Asp Glu 3050	gaa cct ttt tta att Glu Pro Phe Leu Ile 3055	ctt gct Leu Ala 10032
gat cat cat Asp His His 3060	gag ata agg aaa att Glu Ile Arg Lys Ile 3065	agc act gat ggc tcc Ser Thr Asp Gly Ser 3070	aac tac Asn Tyr 10077
aca ctt tta Thr Leu Leu 3075	aaa cag gga tta aac Lys Gln Gly Leu Asn 3080	aat gtt att gct ata Asn Val Ile Ala Ile 3085	gac ttt Asp Phe 10122
gat tac aga Asp Tyr Arg 3090	gaa gaa ttc atc tat Glu Glu Phe Ile Tyr 3095	tgg atc gat tct agc Trp Ile Asp Ser Ser 3100	cga ccc Arg Pro 10167
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att gaa gta Ile Glu Val 3150	tcc aaa ctc aat ggc Ser Lys Leu Asn Gly 3155	ttg tac cct act ata Leu Tyr Pro Thr Ile 3160	ctc gtt Leu Val 10347
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gca tat tgt Ala Tyr Cys 3855	aat caa ata aaa Asn Gln Ile Lys 3860	aca tct Thr Arg 3860	gtt ttc tgt Val Phe Cys 3865	cgc tgt aag Arg Cys Lys 3865	12462
cct gga ttt Pro Gly Phe 3870	cag aga aac atg Gln Arg Asn Met 3875	aaa aac Lys Asn 3875	aga caa tgt Asn Arg Gln Cys 3880	gaa gac ctt Glu Asp Leu 3880	12507
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aga aat aac Arg Asn Asn 3915	acc tgc ata gca Thr Cys Ile Ala 3920	gaa ggc Glu Gly 3920	tct gaa gat Ser Glu Asp 3925	caa gtt ctc Gln Val Leu 3925	12642

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aac tac agt ggc gat cat caa caa att tct cat att gaa cat aat 12732 Asn Tyr Ser Gly Asp His Gln Gln Ile Ser His Ile Glu His Asn 3945 3950 3955
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gat ggc tct aat tca gta gtc tct gtc agc agc aaa caa ggt tta 13317 Asp Gly Ser Asn Ser Val Val Ser Val Ser Ser Lys Gln Gly Leu 4140 4145 4150
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35 40 45

Ser Gly Leu Leu Pro Ile Ala Arg Val Leu Thr Val Gly Ala Asp Arg
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Asp Gln Gln Leu Cys Asp Pro Gly Glu Phe Leu Cys His Asp His Val
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Thr Cys Val Ser Arg Ser Trp Leu Cys Asp Gly Asp Pro Asp Cys Pro
85 90 95

Asp Asp Ser Asp Glu Ser Leu Asp Thr Cys Pro Glu Glu Val Glu Ile
100 105 110

Lys Cys Pro Leu Asn His Ile Ala Cys Leu Gly Thr Asn Lys Cys Val
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His Leu Ser Gln Leu Cys Asn Gly Val Leu Asp Cys Pro Asp Gly Tyr
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Asp Glu Gly Val His Cys Gln Glu Leu Leu Ser Asn Cys Gln Gln Leu
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Asn Cys Gln Tyr Lys Cys Thr Met Val Arg Asn Ser Thr Arg Cys Tyr
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Cys Glu Asp Gly Phe Glu Ile Thr Glu Asp Gly Arg Ser Cys Lys Asp
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Gln Asp Glu Cys Ala Val Tyr Gly Thr Cys Ser Gln Thr Cys Arg Asn
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Thr His Gly Ser Tyr Thr Cys Ser Cys Val Glu Gly Tyr Leu Met Gln
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Asn Gly Ser Lys Met Ala Thr Leu Ser Ser Val Asn Gly Asn Glu Ile
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 Val Val Asp Tyr Gln Gly Lys Asn Arg His Thr Val Ile Gln Gly Arg
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 Gln Val Arg His Leu Tyr Gly Ile Thr Val Phe Glu Asp Tyr Leu Tyr
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Val Asn Pro Arg Ala Leu Asp Phe His Ala Glu Thr Asn Tyr Ile Tyr
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Glu Ile Asp Asp Ser Val Gly Arg Ile Glu Lys Ala Trp Met Asp Gly
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Phe Asn Arg Gln Ile Phe Val Thr Ser Lys Met Leu Trp Pro Asn Gly
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Leu Thr Leu Asp Phe His Thr Asn Thr Leu Tyr Trp Cys Asp Ala Tyr
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Tyr Asp His Ile Glu Lys Val Phe Leu Asn Gly Thr His Arg Lys Ile
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785					790					795					800
Leu	Asp	Leu	Ile	Thr	Ser	Glu	Val	Thr	Leu	Leu	Arg	His	Glu	Arg	Pro
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Pro	Leu	Phe	Gly	Leu	Gln	Ile	Tyr	Asp	Pro	Arg	Lys	Gln	Gln	Gly	Asp
			820					825					830		
Asn	Met	Cys	Arg	Val	Asn	Asn	Gly	Gly	Cys	Ser	Thr	Leu	Cys	Leu	Ala
		835					840					845			
Ile	Pro	Gly	Gly	Arg	Val	Cys	Ala	Cys	Ala	Asp	Asn	Gln	Leu	Leu	Asp
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Ile	Cys	Lys	Ala	Gly	Glu	Phe	Arg	Cys	Lys	Asn	Arg	His	Cys	Ile	Gln
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			900					905					910		
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945					950					955					960
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Thr	Asp	Glu	Met	Ala	Ser	Cys	Glu	Phe	Pro	Thr	Cys	Glu	Pro	Leu	Thr
		995					1000						1005		
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Val Cys	Glu Gln	His Lys	His Thr	Val Lys	Cys Ser	Cys Tyr	Glu
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Pro Phe	Glu Ala	Phe Ile	Ile Phe	Ser Ile	Arg His	Glu Ile	Arg
1295			1300			1305	
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1310			1315			1320	
Leu Arg	Asn Thr	Ile Ala	Leu Asp	Phe His	Phe Asn	Gln Ser	Leu
1325			1330			1335	
Leu Tyr	Trp Thr	Asp Val	Val Glu	Asp Arg	Ile Tyr	Arg Gly	Lys
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His Gly	Leu Ala	Thr Pro	Glu Gly	Leu Thr	Val Asp	Trp Ile	Ala
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Ala Lys	Leu Asp	Gly Ser	Leu Arg	Thr Thr	Leu Ile	Ala Gly	Ala
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Met Glu	His Pro	Arg Ala	Ile Ala	Leu Asp	Pro Arg	Tyr Gly	Ile
1415			1420			1425	
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1460			1465			1470	
Lys Arg	Ile Val	Trp Thr	Asp Ala	Arg Ser	Asp Ala	Ile Tyr	Ser
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Lys Trp	Thr Gly Gln Asn Val	Ser Val Ile Gln Lys	Thr Ser Ala	
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Gln Pro	Phe Asp Leu Gln Ile	Tyr His Pro Ser Arg	Gln Pro Gln	
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His Met	Cys Leu Ile Asn His	Asn Arg Ser Ala Ala	Cys Ala Cys	
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Pro His	Leu Met Lys Leu Ser	Ser Asp Lys Lys Thr	Cys Tyr Glu	
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Met Lys	Lys Phe Leu Leu Tyr	Ala Arg Arg Ser Glu	Ile Arg Gly	
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Val Asp	Ile Asp Asn Pro Tyr	Phe Asn Phe Ile Thr	Ala Phe Thr	
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Val Pro	Asp Ile Asp Asp Val	Thr Val Ile Asp Phe	Asp Ala Ser	
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Glu Glu	Arg Leu Tyr Trp Thr	Asp Ile Lys Thr Gln	Thr Ile Lys	
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Arg Ala	Phe Ile Asn Gly Thr	Gly Leu Glu Thr Val	Ile Ser Arg	
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Asp Ile	Gln Ser Ile Arg Gly	Leu Ala Val Asp Trp	Val Ser Arg	
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Asn Leu	Tyr Trp Ile Ser Ser	Glu Phe Asp Glu Thr	Gln Ile Asn	
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Val Ala	Arg Leu Asp Gly Ser	Leu Lys Thr Ser Ile	Ile His Gly	
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Ala Leu	Met Pro	Ile Ser	Gly Thr	Ser Phe	Ala Val	Gly Ile	Asp
1940			1945		1950		
Phe His	Ala Glu	Asn Asp	Thr Ile	Tyr Trp	Thr Asp	Met Gly	Phe
1955			1960		1965		
Asn Lys	Ile Ser	Arg Ala	Lys Arg	Asp Gln	Thr Trp	Lys Glu	Asp
1970			1975		1980		

Ile	Ile	Thr	Asn	Gly	Leu	Gly	Arg	Val	Glu	Gly	Ile	Ala	Val	Asp
1985						1990					1995			
Trp	Ile	Ala	Gly	Asn	Ile	Tyr	Trp	Thr	Asp	His	Gly	Phe	Asn	Leu
2000						2005					2010			
Ile	Glu	Val	Ala	Arg	Leu	Asn	Gly	Ser	Phe	Arg	Tyr	Val	Ile	Ile
2015						2020					2025			
Ser	Gln	Gly	Leu	Asp	Gln	Pro	Arg	Ser	Ile	Ala	Val	His	Pro	Glu
2030						2035					2040			
Lys	Gly	Leu	Leu	Phe	Trp	Thr	Glu	Trp	Gly	Gln	Met	Pro	Cys	Ile
2045						2050					2055			
Gly	Lys	Ala	Arg	Leu	Asp	Gly	Ser	Glu	Lys	Val	Val	Leu	Val	Ser
2060						2065					2070			
Met	Gly	Ile	Ala	Trp	Pro	Asn	Gly	Ile	Ser	Ile	Asp	Tyr	Glu	Glu
2075						2080					2085			
Asn	Lys	Leu	Tyr	Trp	Cys	Asp	Ala	Arg	Thr	Asp	Lys	Ile	Glu	Arg
2090						2095					2100			
Ile	Asp	Leu	Glu	Thr	Gly	Gly	Asn	Arg	Glu	Met	Val	Leu	Ser	Gly
2105						2110					2115			
Ser	Asn	Val	Asp	Met	Phe	Ser	Val	Ala	Val	Phe	Gly	Ala	Tyr	Ile
2120						2125					2130			
Tyr	Trp	Ser	Asp	Arg	Ala	His	Ala	Asn	Gly	Ser	Val	Arg	Arg	Gly
2135						2140					2145			
His	Lys	Asn	Asp	Ala	Thr	Glu	Thr	Ile	Thr	Met	Arg	Thr	Gly	Leu
2150						2155					2160			
Gly	Val	Asn	Leu	Lys	Glu	Val	Lys	Ile	Phe	Asn	Arg	Val	Arg	Glu
2165						2170					2175			
Lys	Gly	Thr	Asn	Val	Cys	Ala	Arg	Asp	Asn	Gly	Gly	Cys	Lys	Gln
2180						2185					2190			
Leu	Cys	Leu	Tyr	Arg	Gly	Asn	Ser	Arg	Arg	Thr	Cys	Ala	Cys	Ala
2195						2200					2205			
His	Gly	Tyr	Leu	Ala	Glu	Asp	Gly	Val	Thr	Cys	Leu	Arg	His	Glu
2210						2215					2220			

Gly	Tyr	Leu	Leu	Tyr	Ser	Gly	Arg	Thr	Ile	Leu	Lys	Ser	Ile	His
2225						2230					2235			
Leu	Ser	Asp	Glu	Thr	Asn	Leu	Asn	Ser	Pro	Ile	Arg	Pro	Tyr	Glu
2240						2245					2250			
Asn	Pro	Arg	Tyr	Phe	Lys	Asn	Val	Ile	Ala	Leu	Ala	Phe	Asp	Tyr
2255						2260					2265			
Asn	Gln	Arg	Arg	Lys	Gly	Thr	Asn	Arg	Ile	Phe	Tyr	Ser	Asp	Ala
2270						2275					2280			
His	Phe	Gly	Asn	Ile	Gln	Leu	Ile	Lys	Asp	Asn	Trp	Glu	Asp	Arg
2285						2290					2295			
Gln	Val	Ile	Val	Glu	Asn	Val	Gly	Ser	Val	Glu	Gly	Leu	Ala	Tyr
2300						2305					2310			
His	Arg	Ala	Trp	Asp	Thr	Leu	Tyr	Trp	Thr	Ser	Ser	Thr	Thr	Ser
2315						2320					2325			
Ser	Ile	Thr	Arg	His	Thr	Val	Asp	Gln	Thr	Arg	Pro	Gly	Ala	Phe
2330						2335					2340			
Asp	Arg	Glu	Ala	Val	Ile	Thr	Met	Ser	Glu	Asp	Asp	His	Pro	His
2345						2350					2355			
Val	Leu	Ala	Leu	Asp	Glu	Cys	Gln	Asn	Leu	Met	Phe	Trp	Thr	Asn
2360						2365					2370			
Trp	Asn	Glu	Gln	His	Pro	Ser	Ile	Met	Arg	Ser	Thr	Leu	Thr	Gly
2375						2380					2385			
Lys	Asn	Ala	Gln	Val	Val	Val	Ser	Thr	Asp	Ile	Leu	Thr	Pro	Asn
2390						2395					2400			
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2405						2410					2415			
Gly	Ser	Leu	Gly	Lys	Ile	Glu	Arg	Cys	Glu	Tyr	Asp	Gly	Ser	Gln
2420						2425					2430			
Arg	His	Val	Ile	Val	Lys	Ser	Gly	Pro	Gly	Thr	Phe	Leu	Ser	Leu
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Ala	Val	Tyr	Asp	Asn	Tyr	Ile	Phe	Trp	Ser	Asp	Trp	Gly	Arg	Arg
2450						2455					2460			

Ala	Ile	Leu	Arg	Ser	Asn	Lys	Tyr	Thr	Gly	Gly	Asp	Thr	Lys	Ile
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Leu	Arg	Ser	Asp	Ile	Pro	His	Gln	Pro	Met	Gly	Ile	Ile	Ala	Val
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Val	Asn	Cys	Ser	Cys	Arg	Gly	Asp	Arg	Ile	Leu	Leu	Glu	Asp	Asn
2525						2530					2535			
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2645						2650					2655			
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2660						2665					2670			
Gly	Val	Lys	Thr	Thr	Gly	Phe	Ile	Arg	Cys	Asn	Ser	Thr	Ser	Leu
2675						2680					2685			
Cys	Val	Leu	Pro	Thr	Trp	Ile	Cys	Asp	Gly	Ser	Asn	Asp	Cys	Gly
2690						2695					2700			

Asp Tyr	Ser Asp Glu Leu Lys	Cys Pro Val Gln Asn	Lys His Lys
2705	2710	2715	
Cys Glu	Glu Asn Tyr Phe Ser	Cys Pro Ser Gly Arg	Cys Ile Leu
2720	2725	2730	
Asn Thr	Trp Ile Cys Asp Gly	Gln Lys Asp Cys Glu	Asp Gly Arg
2735	2740	2745	
Asp Glu	Phe His Cys Asp Ser	Ser Cys Ser Trp Asn	Gln Phe Ala
2750	2755	2760	
Cys Ser	Ala Gln Lys Cys Ile	Ser Lys His Trp Ile	Cys Asp Gly
2765	2770	2775	
Glu Asp	Asp Cys Gly Asp Gly	Leu Asp Glu Ser Asp	Ser Ile Cys
2780	2785	2790	
Gly Ala	Ile Thr Cys Ala Ala	Asp Met Phe Ser Cys	Gln Gly Ser
2795	2800	2805	
Arg Ala	Cys Val Pro Arg His	Trp Leu Cys Asp Gly	Glu Arg Asp
2810	2815	2820	
Cys Pro	Asp Gly Ser Asp Glu	Leu Ser Thr Ala Gly	Cys Ala Pro
2825	2830	2835	
Asn Asn	Thr Cys Asp Glu Asn	Ala Phe Met Cys His	Asn Lys Val
2840	2845	2850	
Cys Ile	Pro Lys Gln Phe Val	Cys Asp His Asp Asp	Asp Cys Gly
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Asp Gly	Ser Asp Glu Ser Pro	Gln Cys Gly Tyr Arg	Gln Cys Gly
2870	2875	2880	
Thr Glu	Glu Phe Ser Cys Ala	Asp Gly Arg Cys Leu	Leu Asn Thr
2885	2890	2895	
Gln Trp	Gln Cys Asp Gly Asp	Phe Asp Cys Pro Asp	His Ser Asp
2900	2905	2910	
Glu Ala	Pro Leu Asn Pro Lys	Cys Lys Ser Ala Glu	Gln Ser Cys
2915	2920	2925	
Asn Ser	Ser Phe Phe Met Cys	Lys Asn Gly Arg Cys	Ile Pro Ser
2930	2935	2940	

Gly Gly Leu Cys Asp Asn Lys Asp Asp Cys Gly Asp Gly Ser Asp
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Glu Arg Asn Cys His Ile Asn Glu Cys Leu Ser Lys Lys Val Ser
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Gly Cys Ser Gln Asp Cys Gln Asp Leu Pro Val Ser Tyr Lys Cys
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Lys Cys Trp Pro Gly Phe Gln Leu Lys Asp Asp Gly Lys Thr Cys
2990 2995 3000

Val Asp Ile Asp Glu Cys Ser Ser Gly Phe Pro Cys Ser Gln Gln
3005 3010 3015

Cys Ile Asn Thr Tyr Gly Thr Tyr Lys Cys Leu Cys Thr Asp Gly
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Tyr Glu Ile Gln Pro Asp Asn Pro Asn Gly Cys Lys Ser Leu Ser
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Asp Glu Glu Pro Phe Leu Ile Leu Ala Asp His His Glu Ile Arg
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Lys Ile Ser Thr Asp Gly Ser Asn Tyr Thr Leu Leu Lys Gln Gly
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Leu Asn Asn Val Ile Ala Ile Asp Phe Asp Tyr Arg Glu Glu Phe
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Ile Tyr Trp Ile Asp Ser Ser Arg Pro Asn Gly Ser Arg Ile Asn
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Arg Met Cys Leu Asn Gly Ser Asp Ile Lys Val Val His Asn Thr
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Tyr Trp Ser Asp Thr Glu Lys Arg Ile Ile Glu Val Ser Lys Leu
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Ile Asp	Cys Cys Glu Tyr	Pro	His Ile Gly Arg Val	Gly Met Asp
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Gly Thr	Asn Gln Ser Val	Val	Ile Glu Thr Lys Ile	Ser Arg Pro
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Met Ala	Leu Thr Ile Asp	Tyr	Val Asn Arg Arg Leu	Tyr Trp Ala
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Asp Glu	Asn His Ile Glu	Phe	Ser Asn Met Asp Gly	Ser His Arg
3230		3235		3240
His Lys	Val Pro Asn Gln	Asp	Ile Pro Gly Val Ile	Ala Leu Thr
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Leu Phe	Glu Asp Tyr Ile	Tyr	Trp Thr Asp Gly Lys	Thr Lys Ser
3260		3265		3270
Leu Ser	Arg Ala His Lys	Thr	Ser Gly Ala Asp Arg	Leu Ser Leu
3275		3280		3285
Ile Tyr	Ser Trp His Ala	Ile	Thr Asp Ile Gln Val	Tyr His Ser
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Tyr Arg	Gln Pro Asp Val	Ser	Lys His Leu Cys Met	Ile Asn Asn
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Gly Gly	Cys Ser His Leu	Cys	Leu Leu Ala Pro Gly	Lys Thr His
3320		3325		3330
Thr Cys	Ala Cys Pro Thr	Asn	Phe Tyr Leu Ala Ala	Asp Asn Arg
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Thr Cys	Leu Ser Asn Cys	Thr	Ala Ser Gln Phe Arg	Cys Lys Thr
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Asp Lys	Cys Ile Pro Phe	Trp	Trp Lys Cys Asp Thr	Val Asp Asp
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Cys Gly	Asp Gly Ser Asp	Glu	Pro Asp Asp Cys Pro	Glu Phe Arg
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Cys Gln	Pro Gly Arg Phe	Gln	Cys Gly Thr Gly Leu	Cys Ala Leu
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Pro Ala	Phe Ile Cys Asp	Gly	Glu Asn Asp Cys Gly	Asp Asn Ser
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Asp Glu Leu Asn Cys Asp Thr His Val Cys Leu Ser Gly Gln Phe
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Lys Cys Thr Lys Asn Gln Lys Cys Ile Pro Val Asn Leu Arg Cys
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Asn Gly Gln Asp Asp Cys Gly Asp Glu Glu Asp Glu Arg Asp Cys
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Pro Glu Asn Ser Cys Ser Pro Asp Tyr Phe Gln Cys Lys Thr Thr
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Lys His Cys Ile Ser Lys Leu Trp Val Cys Asp Glu Asp Pro Asp
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Cys Ala Asp Ala Ser Asp Glu Ala Asn Cys Asp Lys Lys Thr Cys
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His Trp Arg Cys Asp Ser Gln Asn Asp Cys Ser Asp Asn Ser Asp
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 Lys Thr Ser Val Phe Cys Arg Cys Lys Pro Gly Phe Gln Arg Asn
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Arg Gln	Ala Asn	Ser Gly	Leu	Ile Cys	Pro Glu	Phe	Lys Arg	Pro
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Asp His	Ser Arg	Met His	Trp	Phe Ser	Tyr Tyr	Thr	Thr His	Trp
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Thr Ser	Leu Arg	Tyr Ser	Ile	Asn Val	Gly Gln	Leu	Asn Gly	Pro
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Asn Cys	Thr Arg	Leu Leu	Thr	Asn Met	Ala Gly	Glu	Pro Tyr	Ala
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Ile Ala	Val Asn	Pro Lys	Arg	Gly Met	Met Tyr	Trp	Thr Val	Val
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Gly Asp	His Ser	His Ile	Glu	Glu Ala	Ala Met	Asp	Gly Thr	Leu
4085			4090			4095		
Arg Arg	Ile Leu	Val Gln	Lys	Asn Leu	Gln Arg	Pro	Thr Gly	Leu
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Ala Val	Asp Tyr	Phe Ser	Glu	Arg Ile	Tyr Trp	Ala	Asp Phe	Glu
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Leu Ser	Ile Ile	Gly Ser	Val	Leu Tyr	Asp Gly	Ser	Asn Ser	Val
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Val Ser 4145	Val Ser Ser Lys 4150	Gln Gly Leu Leu His 4155	Pro His Arg Ile
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Val Phe 4175	Arg Val Gln Lys 4180	Phe Gly His Gly Ser 4185	Val Glu Tyr Leu
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Tyr Lys 4205	Gln Leu Asp Leu 4210	Pro Asn Pro Cys Leu 4215	Asp Leu Ala Cys
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Pro Glu 4235	Gly Lys Tyr Leu 4240	Ile Asn Gly Thr Cys 4245	Asn Asp Asp Ser
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Cys Gln 4295	Asn Gly Gly Thr 4300	Cys Val Pro Ser Val 4305	Leu Gly Arg Pro
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gtgattttac aatggactta tggttggtgg gaaaattcag catggaaatg cttttcaaaa 1860
tatgatagcg gtcattattt tgattgtgcc ttactgaaag ttttgggga attacaaga 1920
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cacatggttg atgaggaagc tgagttgcac tagtgcacat gattccagc caggtcatgg 2100
gaaatgaaca gagacagtga catctttgta gctgtcctt tgtgaggcac tctttcttgg 2160
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agnttattgg gttactgata at 2242

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<210> 35
<211> 280
<212> PRT
<213> Homo sapiens

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20     25     30
Pro Glu Pro Arg Arg Thr Glu His Arg Ala Pro Ser Ser Thr Trp Arg
35     40     45
Pro Val Ala Leu Thr Leu Leu Thr Leu Cys Leu Val Leu Leu Ile Gly
50     55     60
Leu Ala Ala Leu Gly Leu Leu Phe Phe Gln Tyr Tyr Gln Leu Ser Asn
65     70     75     80
Thr Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr
85     90     95
Ser Gln Glu Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala Gly
100    105    110
Ser Leu Gln His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn Lys
115    120    125
Ala Gly Ala His Arg Cys Ser Pro Cys Thr Glu Gln Trp Lys Trp His
130    135    140

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Gly Asp Asn Cys Tyr Gln Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp
 145 150 155 160
 Cys Lys Tyr Phe Cys Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn
 165 170 175
 Lys Gln Glu Asp Leu Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe
 180 185 190
 Phe Tyr Ser Tyr Trp Thr Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala
 195 200 205
 Trp Leu Trp Met Asp Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile
 210 215 220
 Ile Ile Asp Val Thr Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu
 225 230 235 240
 Asn Gly Met Ile Phe Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys Val
 245 250 255
 Cys Glu Arg Arg Ala Gly Met Val Lys Pro Glu Ser Leu His Val Pro
 260 265 270
 Pro Glu Thr Thr Leu Gly Glu Gly Asp
 275 280

<210> 36
 <211> 2323
 <212> DNA
 <213> Homo sapiens

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 acgagggaca tgctggatga tgatggggac accaccatga gcttgcattc tcaagcctct 180
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 aaagtggag gctatacaag aaacatgggt ccagcatctg cttcttctga gagcctcagg 540
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aatgggatga tcttctcaaa ggactgcaaa gaattgaagc gttgtgtctg tgagagaagg	960
gcaggaatgg tgaagccaga gagcctccat gtcccccctg aaacattagg cgaaggtgac	1020
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ttgtgaggca cttcttctct gagatgactc catgcacaaa tataacaggg atcattggga	2280
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<210> 37
 <211> 307
 <212> PRT
 <213> Homo sapiens

<400> 37
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 35 40 45
 Pro Val Ala Leu Thr Leu Leu Thr Leu Cys Leu Val Leu Leu Ile Gly
 50 55 60
 Leu Ala Ala Leu Gly Leu Leu Phe Phe Gln Tyr Tyr Gln Leu Ser Asn
 65 70 75 80
 Thr Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr
 85 90 95
 Ser Gln Glu Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala Gly
 100 105 110
 Ser Leu Gln His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn Lys
 115 120 125
 Ala Gly Gly Tyr Thr Arg Asn Met Val Pro Ala Ser Ala Ser Ser Glu
 130 135 140
 Ser Leu Arg Gln Leu Pro His Met Gly Glu Ser Ala Ala Ala His Arg
 145 150 155 160
 Cys Ser Pro Cys Thr Glu Gln Trp Lys Trp His Gly Asp Asn Cys Tyr
 165 170 175
 Gln Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp Cys Lys Tyr Phe Cys
 180 185 190
 Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn Lys Gln Glu Asp Leu
 195 200 205
 Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe Phe Tyr Ser Tyr Trp
 210 215 220
 Thr Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala Trp Leu Trp Met Asp
 225 230 235 240
 Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile Ile Ile Asp Val Thr
 245 250 255
 Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu Asn Gly Met Ile Phe
 260 265 270
 Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys Val Cys Glu Arg Arg Ala
 275 280 285
 Gly Met Val Lys Pro Glu Ser Leu His Val Pro Pro Glu Thr Leu Gly
 290 295 300
 Glu Gly Asp
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<210> 38
 <211> 2714
 <212> DNA
 <213> Homo sapiens

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agggacgaac ggagaagggg gagagagggg ggtccagtct cccctggccg agcatttttt	180
ttttggaagt cctaggactg atctccagga ccagcactct tctccagcc cttagggctc	240
tgctcgccca aggccttccc tgccatgcga cctgtcagtg tctggcagtg gagccctgg	300
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gaattcacgc tgcaggctgc ccacatctc tgccgggagc tgggcttcac agaggccaca	540
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 gaggaatcgc cagc 2714

<210> 39
 <211> 769
 <212> PRT
 <213> Homo sapiens

<400> 39
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 Pro Glu Lys Lys Ala Gly Ser Gln Gly Leu Arg Phe Arg Leu Ala Gly
 35 40 45
 Phe Pro Arg Lys Pro Tyr Glu Gly Arg Val Glu Ile Gln Arg Ala Gly
 50 55 60
 Glu Trp Gly Thr Ile Cys Asp Asp Asp Phe Thr Leu Gln Ala Ala His
 65 70 75 80
 Ile Leu Cys Arg Glu Leu Gly Phe Thr Glu Ala Thr Gly Trp Thr His
 85 90 95
 Ser Ala Lys Tyr Gly Pro Gly Thr Gly Arg Ile Trp Leu Asp Asn Leu
 100 105 110
 Ser Cys Ser Gly Thr Glu Gln Ser Val Thr Glu Cys Ala Ser Arg Gly
 115 120 125
 Trp Gly Asn Ser Asp Cys Thr His Asp Glu Asp Ala Gly Val Ile Cys
 130 135 140

Lys Asp Gln Arg Leu Pro Gly Phe Ser Asp Ser Asn Val Ile Glu Val
 145 150 155 160
 Glu His His Leu Gln Val Glu Glu Val Arg Ile Arg Pro Ala Val Gly
 165 170 175
 Trp Gly Arg Arg Pro Leu Pro Val Thr Glu Gly Leu Val Glu Val Arg
 180 185 190
 Leu Pro Asp Gly Trp Ser Gln Val Cys Asp Lys Gly Trp Ser Ala His
 195 200 205
 Asn Ser His Val Val Cys Gly Met Leu Gly Phe Pro Ser Glu Lys Arg
 210 215 220
 Val Asn Ala Ala Phe Tyr Arg Lys Leu Arg Lys Arg Ala Ala Lys Val
 225 230 235 240
 Ser Ala Arg His Pro Lys Pro Leu Gly Arg Leu Leu Ala Gln Arg Gln
 245 250 255
 Gln His Ser Phe Gly Leu His Gly Val Ala Cys Val Gly Thr Glu Ala
 260 265 270
 His Leu Ser Leu Cys Ser Leu Glu Phe Tyr Arg Ala Asn Asp Thr Ala
 275 280 285
 Arg Cys Pro Gly Gly Gly Pro Ala Val Val Ser Cys Val Pro Gly Pro
 290 295 300
 Val Tyr Ala Ala Ser Ser Gly Gln Lys Lys Gln Gln Gln Ser Lys Pro
 305 310 315 320
 Gln Gly Glu Ala Arg Val Arg Leu Lys Gly Gly Ala His Pro Gly Glu
 325 330 335
 Gly Arg Val Glu Val Leu Lys Ala Ser Thr Trp Gly Thr Val Cys Asp
 340 345 350
 Arg Lys Trp Asp Leu His Ala Ala Ser Val Val Cys Arg Glu Leu Gly
 355 360 365
 Phe Gly Ser Ala Arg Glu Ala Leu Ser Gly Ala Arg Met Gly Gln Gly
 370 375 380
 Met Gly Ala Ile His Leu Ser Glu Val Arg Cys Ser Gly Gln Glu Leu
 385 390 395 400
 Ser Leu Trp Lys Cys Pro His Lys Asn Ile Thr Ala Glu Asp Cys Ser
 405 410 415
 His Ser Gln Asp Ala Gly Val Arg Cys Asn Leu Pro Tyr Thr Gly Ala
 420 425 430
 Glu Thr Arg Ile Arg Leu Ser Gly Gly Arg Ser Gln His Glu Gly Arg
 435 440 445
 Val Glu Val Gln Ile Gly Gly Pro Gly Pro Leu Arg Trp Gly Leu Ile
 450 455 460
 Cys Gly Asp Asp Trp Gly Thr Leu Glu Ala Met Val Ala Cys Arg Gln
 465 470 475 480

Leu Gly Leu Gly Tyr Ala Asn His Gly Leu Gln Glu Thr Trp Tyr Trp
485 490 495

Asp Ser Gly Asn Ile Thr Glu Val Val Met Ser Gly Val Arg Cys Thr
500 505 510

Gly Thr Glu Leu Ser Leu Asp Gln Cys Ala His His Gly Thr His Ile
515 520 525

Thr Cys Lys Arg Thr Gly Thr Arg Phe Thr Ala Gly Val Ile Cys Ser
530 535 540

Glu Thr Ala Ser Asp Leu Leu Leu His Ser Ala Leu Val Gln Glu Thr
545 550 555 560

Ala Tyr Ile Glu Asp Arg Pro Leu His Met Leu Tyr Cys Ala Ala Glu
565 570 575

Glu Asn Cys Leu Ala Ser Ser Ala Arg Ser Ala Asn Trp Pro Tyr Gly
580 585 590

His Arg Arg Leu Leu Arg Phe Ser Ser Gln Ile His Asn Leu Gly Arg
595 600 605

Ala Asp Phe Arg Pro Lys Ala Gly Arg His Ser Trp Val Trp His Glu
610 615 620

Cys His Gly His Tyr His Ser Met Asp Ile Phe Thr His Tyr Asp Ile
625 630 635 640

Leu Thr Pro Asn Gly Thr Lys Val Ala Glu Gly His Lys Ala Ser Phe
645 650 655

Cys Leu Glu Asp Thr Glu Cys Gln Glu Asp Val Ser Lys Arg Tyr Glu
660 665 670

Cys Ala Asn Phe Gly Glu Gln Gly Ile Thr Val Gly Cys Trp Asp Leu
675 680 685

Tyr Arg His Asp Ile Asp Cys Gln Trp Ile Asp Ile Thr Asp Val Lys
690 695 700

Pro Gly Asn Tyr Ile Leu Gln Val Val Ile Asn Pro Asn Phe Glu Val
705 710 715 720

Ala Glu Ser Asp Phe Thr Asn Asn Ala Met Lys Cys Asn Cys Lys Tyr
725 730 735

Asp Gly His Arg Ile Trp Val His Asn Cys His Ile Gly Asp Ala Phe
740 745 750

Ser Glu Glu Ala His Arg Arg Phe Glu Arg Ser Pro Gly Gln Thr Ser
755 760 765

Thr

<210> 40
<211> 1877
<212> DNA
<213> Homo sapiens

<400> 40
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gaagacgtgc ctcccggcgt cgtatggatt aacaagctcc aagtagggtg tacaacgcgg 1860

cagcatgaac tcccagg

1877

<210> 41
<211> 400
<212> PRT
<213> Homo sapiens

<400> 41
Met Asn Lys Lys Lys Pro Leu His Ser Lys Ser Ser Arg Ile His Gln
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20 25 30
Gln Val Met Ala Ser Met Ala Ala Val Leu Thr Trp Ala Leu Ala Leu
35 40 45
Leu Ser Ala Phe Ser Ala Thr Gln Ala Arg Lys Gly Phe Trp Asp Tyr
50 55 60
Phe Ser Gln Thr Ser Gly Asp Lys Gly Arg Val Glu Gln Ile His Gln
65 70 75 80
Gln Lys Met Ala Arg Glu Pro Ala Thr Leu Lys Asp Ser Leu Glu Gln
85 90 95
Asp Leu Asn Asn Met Asn Lys Phe Leu Glu Lys Leu Arg Pro Leu Ser
100 105 110
Gly Ser Glu Ala Pro Arg Leu Pro Gln Asp Pro Val Gly Met Arg Arg
115 120 125
Gln Leu Gln Glu Glu Leu Glu Glu Val Lys Ala Arg Leu Gln Pro Tyr
130 135 140
Met Ala Glu Ala His Glu Leu Val Gly Trp Asn Leu Glu Gly Leu Arg
145 150 155 160
Gln Gln Leu Lys Pro Tyr Thr Met Asp Leu Met Glu Gln Val Ala Leu
165 170 175
Arg Val Gln Glu Leu Gln Glu Gln Leu Arg Val Val Gly Glu Asp Thr
180 185 190
Lys Ala Gln Leu Leu Gly Gly Val Asp Glu Ala Trp Ala Leu Leu Gln
195 200 205
Gly Leu Gln Ser Arg Val Val His His Thr Gly Arg Phe Lys Glu Leu
210 215 220
Phe His Pro Tyr Ala Glu Ser Leu Val Ser Gly Ile Gly Arg His Val
225 230 235 240
Gln Glu Leu His Arg Ser Val Ala Pro His Ala Pro Ala Ser Pro Ala
245 250 255
Arg Leu Ser Arg Cys Val Gln Val Leu Ser Arg Lys Leu Thr Leu Lys
260 265 270
Ala Lys Ala Leu His Ala Arg Ile Gln Gln Asn Leu Asp Gln Leu Arg
275 280 285

Glu Glu Leu Ser Arg Ala Phe Ala Gly Thr Gly Thr Glu Glu Gly Ala
 290 295 300

Gly Pro Asp Pro Gln Met Leu Ser Glu Glu Val Arg Gln Arg Leu Gln
 305 310 315 320

Ala Phe Arg Gln Asp Thr Tyr Leu Gln Ile Ala Ala Phe Thr Arg Ala
 325 330 335

Ile Asp Gln Glu Thr Glu Glu Val Gln Gln Gln Leu Ala Pro Pro Pro
 340 345 350

Pro Gly His Ser Ala Phe Ala Pro Glu Phe Gln Gln Thr Asp Ser Gly
 355 360 365

Lys Val Leu Ser Lys Leu Gln Ala Arg Leu Asp Asp Leu Trp Glu Asp
 370 375 380

Ile Thr His Ser Leu His Asp Gln Gly His Ser His Leu Gly Asp Pro
 385 390 395 400

<210> 42
 <211> 2128
 <212> DNA
 <213> Homo sapiens

<400> 42
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 20 25 30
 Thr Glu Glu Val Ile Glu Tyr Phe Gln Lys Lys Val Ser Pro Val His
 35 40 45
 Leu Lys Ile Leu Leu Thr Ser Asp Glu Ala Trp Lys Arg Phe Val Arg
 50 55 60
 Val Ala Glu Leu Pro Arg Glu Glu Ala Asp Ala Leu Tyr Glu Ala Leu
 65 70 75 80
 Lys Asn Leu Thr Pro Tyr Val Thr Ile Glu Asp Lys Asp Met Gln Gln
 85 90 95
 Lys Glu Gln Gln Phe Arg Glu Trp Phe Leu Lys Glu Phe Pro Gln Ile
 100 105 110

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Arg Trp Lys Ile Gln Glu Ser Ile Glu Arg Leu Arg Val Ile Ala Asn
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Glu Ile Glu Lys Val His Arg Gly Cys Val Ile Ala Asn Val Val Ser
    130                135                140
Gly Ser Thr Gly Ile Leu Ser Val Ile Gly Val Met Leu Ala Pro Phe
    145                150                155                160
Thr Ala Gly Leu Ser Leu Ser Ile Thr Ala Ala Gly Val Gly Leu Gly
    165                170                175
Ile Ala Ser Ala Thr Ala Gly Ile Ala Ser Ser Ile Val Glu Asn Thr
    180                185                190
Tyr Thr Arg Ser Ala Glu Leu Thr Ala Ser Arg Leu Thr Ala Thr Ser
    195                200                205
Thr Asp Gln Leu Glu Ala Leu Arg Asp Ile Leu His Asp Ile Thr Pro
    210                215                220
Asn Val Leu Ser Phe Ala Leu Asp Phe Asp Glu Ala Thr Lys Met Ile
    225                230                235                240
Ala Asn Asp Val His Thr Leu Arg Arg Ser Lys Ala Thr Val Gly Arg
    245                250                255
Pro Leu Ile Ala Trp Arg Tyr Val Pro Ile Asn Val Val Glu Thr Leu
    260                265                270
Arg Thr Arg Gly Ala Pro Thr Arg Ile Val Arg Lys Val Ala Arg Asn
    275                280                285
Leu Gly Lys Ala Thr Ser Gly Val Leu Val Val Leu Asp Val Val Asn
    290                295                300
Leu Val Gln Asp Ser Leu Asp Leu His Lys Gly Ala Lys Ser Glu Ser
    305                310                315                320
Ala Glu Ser Leu Arg Gln Trp Ala Gln Glu Leu Glu Glu Asn Leu Asn
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gaatccag atg cag gcc aag tac agc agc acg agg gac atg ctg gat gat      170
          Met Gln Ala Lys Tyr Ser Ser Thr Arg Asp Met Leu Asp Asp
          1          5          10

gat ggg gac acc acc atg agc ctg cat tct caa gcc tct gcc aca act      218
Asp Gly Asp Thr Thr Met Ser Leu His Ser Gln Ala Ser Ala Thr Thr
15          20          25          30

cgc cat cca gag ccc cgc cgc aca gtt ttt cag tac tac cag ctc tcc      266
Arg His Pro Glu Pro Arg Arg Thr Val Phe Gln Tyr Tyr Gln Leu Ser
          35          40          45

aat act ggt caa gac acc att tct caa atg gaa gaa aga tta gga aat      314
Asn Thr Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn
          50          55          60

acg tcc caa gag ttg caa tct ctt caa gtc cag aat ata aag ctt gca      362
Thr Ser Gln Glu Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala
          65          70          75

gga agt ctg cag cat gtg gct gaa aaa ctc tgt cgt gag ctg tat aac      410
Gly Ser Leu Gln His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn
          80          85          90

aaa gct gga ggc tat aca aga aac atg gtg cca gca tct gct tct tct      458
Lys Ala Gly Gly Tyr Thr Arg Asn Met Val Pro Ala Ser Ala Ser Ser
          95          100          105          110

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gag agc ctc agg cag ctt cca cac atg ggg gaa agt gca gca gca cac Glu Ser Leu Arg Gln Leu Pro His Met Gly Glu Ser Ala Ala Ala His 115 120 125	506
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tac cag ttc tat aaa gac agc aaa agt tgg gag gac tgt aaa tat ttc Tyr Gln Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp Cys Lys Tyr Phe 145 150 155	602
tgc ctt agt gaa aac tct acc atg ctg aag ata aac aaa caa gaa gac Cys Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn Lys Gln Glu Asp 160 165 170	650
ctg gaa ttt gcc gcg tct cag agc tac tct gag ttt ttc tac tct tat Leu Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe Phe Tyr Ser Tyr 175 180 185 190	698
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gat gga acc cct ttc act tct gaa ctg ttc cat att ata ata gat gtc Asp Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile Ile Ile Asp Val 210 215 220	794
acc agc cca aga agc aga gac tgt gtg gcc atc ctt aat ggg atg atc Thr Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu Asn Gly Met Ile 225 230 235	842
ttc tca aag gac tgc aaa gaa ttg aag cgt tgt gtc tgt gag aga agg Phe Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys Val Cys Glu Arg Arg 240 245 250	890
gca gga atg gtg aag cca gag agc ctc cat gtc ccc cct gaa aca tta Ala Gly Met Val Lys Pro Glu Ser Leu His Val Pro Pro Glu Thr Leu 255 260 265 270	938
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Asp Thr Thr Met Ser Leu His Ser Gln Ala Ser Ala Thr Thr Arg His 20 25 30	
Pro Glu Pro Arg Arg Thr Val Phe Gln Tyr Tyr Gln Leu Ser Asn Thr 35 40 45	

Gly Gln Asp Thr Ile Ser Gln Met Glu Glu Arg Leu Gly Asn Thr Ser
50 55 60

Gln Glu Leu Gln Ser Leu Gln Val Gln Asn Ile Lys Leu Ala Gly Ser
65 70 75 80

Leu Gln His Val Ala Glu Lys Leu Cys Arg Glu Leu Tyr Asn Lys Ala
85 90 95

Gly Gly Tyr Thr Arg Asn Met Val Pro Ala Ser Ala Ser Ser Glu Ser
100 105 110

Leu Arg Gln Leu Pro His Met Gly Glu Ser Ala Ala Ala His Arg Cys
115 120 125

Ser Pro Cys Thr Glu Gln Trp Lys Trp His Gly Asp Asn Cys Tyr Gln
130 135 140

Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp Cys Lys Tyr Phe Cys Leu
145 150 155 160

Ser Glu Asn Ser Thr Met Leu Lys Ile Asn Lys Gln Glu Asp Leu Glu
165 170 175

Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe Phe Tyr Ser Tyr Trp Thr
180 185 190

Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala Trp Leu Trp Met Asp Gly
195 200 205

Thr Pro Phe Thr Ser Glu Leu Phe His Ile Ile Ile Asp Val Thr Ser
210 215 220

Pro Arg Ser Arg Asp Cys Val Ala Ile Leu Asn Gly Met Ile Phe Ser
225 230 235 240

Lys Asp Cys Lys Glu Leu Lys Arg Cys Val Cys Glu Arg Arg Ala Gly
245 250 255

Met Val Lys Pro Glu Ser Leu His Val Pro Pro Glu Thr Leu Gly Glu
260 265 270

Gly Asp Met His His His His His His
275 280